Allied Vision

GigE Vision & Camera Link SWIR Cameras

Goldeye G/CL

Features Reference

V1.7.2

FW 04.04.77cd2f3e

This reference at a glance

Overview

Read this reference carefully

Read this reference to fully understand your camera’s features.

This features reference describes features to control Allied Vision Goldeye IR and scientific cameras:

- Goldeye G (all Cool, stabilized, and TECless models)
- Goldeye CL (all Cool, stabilized, and TECless models).

Further information and feedback

- For more information on Goldeye G/CL cameras, including the Goldeye Camera Link Register Controls Reference, see www.alliedvision.com/en/support/technical-documentation/goldeye-gcl-documentation.
- For feedback or technical questions, please visit www.alliedvision.com/en/support.

Availability of features and values

Functionalities described in this document may not be supported by every Goldeye G/CL model. Values may differ between models as well.

Vimba and third party software

Vimba is the Allied Vision Software Development Kit (SDK) for camera control and image acquisition, including drivers and other useful data.

Because Vimba SDK is based on the GenICam standard, GenICam-based third-party software automatically connects with **Vimba**'s transport layers. Additionally, Vimba includes the **Cognex Adapter** for **VisionPro**.

Download **Vimba** from:

www.alliedvision.com/en/support/software-downloads

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Document history and conventions

This chapter includes:

Document history

Version	Date	Remarks
V1.7.2	2023-Jan-26	**Firmware version**: 04.04.77cd2f3e • Updated the title image. • Applied changes in Feature description on page 22: - Added `FpaTCDS`. - Added new values for `DPCMode`. - Added support for Goldeye G/CL-008 and G/CL-008 XSWIR for `MultipleRegions` features. - Added support for Goldeye all G/CL-008 and all G/CL-034 models for `TestPattern` features. - Updated descriptions for `TestPattern` features. • Applied editorial changes.
V1.7.1	2022-Oct-04	**Firmware version**: 03.06.49d19afc • Applied changes in Feature description on page 22: - Added new values for `PixelFormat`. - Updated `MultipleRegions` features. • Applied editorial changes.
V1.7.0	2022-Mar-08	**Firmware version**: 02.26.38494 • Applied changes in Feature description on page 22: - Added `ExposureRangeMode`. - Added `MultipleRegions` features. - Added `TestPattern` features. • Applied editorial changes.
V1.6.0	2021-Nov-25	**Firmware version**: 02.24.37527 • Added Image data flow and controls order on page 12. • Applied changes in Feature description on page 22: - Added *Average* option to `BinningHorizontalMode` and `BinningVerticalMode`. - Added `BlackLevel` (G/CL-030 TEC1 and G/CL-130 TEC1) with default value = 0. **Note**: This feature was originally released for G-030 TEC1 and G-130 TEC1 with FW version 02.22.35663, with default = 240. The feature was omitted in V1.5.0 and V1.5.1 of this reference because users could not access the feature. - Added `Decimation` (all models). - Added support for `SensorTemperatureTargetSetpoint` (G/CL-030 TEC1 and G/CL-130 TEC1). • Removed descriptions for Camera Link registers and published in the Alvium Camera Link Register Controls Reference. • Partly reorganized contents. • Applied editorial changes.

Version	Date	Remarks
V1.5.1	2021-Sep-16	Corrected information on updated default values for `IntegrationMode`.
V1.5.0	2021-Jul-12	**Firmware version**: 02.22.35663 • Applied changes in Feature description on page 22: - Added *`UserWholeImage`* and *`UserModeAutoRegion`* options to `ContrastAuto`. - Added `ContrastUserInputMax`, `ContrastUserInputMin`, and `Gain` (G-030 TEC1 and G-130 TEC1). • Corrected the register address for `RegNUCDatasetExposureTime` in Camera Link registers on page 26. • Stopped updating register descriptions in Camera Link registers on page 26. • Applied editorial changes.
V1.4.1	2019-Sep-05	Editorial changes to improve usability.
V1.4.0	2019-Jul-09	• Added a Category descriptor to each feature. • Removed an error in the TIDC description. • Applied editorial changes.
V1.3.1	2019-Mar-20	Added registers `ClMinFValToLValDelay`, `ClLValToLValDelay`, `ClLValToFValDelay`, and `ClMinFValToFValDelay` in Camera Link registers on page 26.
V1.3.0	2018-May-08	**Firmware version**: 02.18.20213 • Added, moved and renamed features and registers to implement sensor heating in both parts of the reference. • Applied editorial changes: minor restructuring and corrections.
V1.2.0	2017-Jun-14	**Firmware version**: 02.14.19002 Changes in GenICam part: • Added, moved and renamed features to implement AutoContrast. • Added TID correction.
V1.1.0	2016-Jun-30	**Firmware version**: 02.12.17558 • Added features and registers for automatic exposure. • Added features and registers for timing control. • Applied numerous small changes.
V1.0.0	2016-Feb-29	**Firmware version**: 02.10.16613 New document release status

Conventions used in this reference

To give this features reference an easily understandable layout and to emphasize important information, the following typographical styles and symbols are used:

Styles

This features reference uses specific text formatting to help the reader find his way around. The following table gives an explanation of the formatting used.

Style (example)	Function
Emphasis	Some important parts or items of the text are emphasized to make them more visible.
`Features names`	Features names are displayed as mono-spaced text.
`Features options`	Options for features that are selectable by the user are displayed as mono-spaced italicized text.
`Commands and inputs`	Text or command to type in by the user, selected menu options, or other selectable options.
`Source code`	Code words of programs and code examples, used in running text. Mainly designated for use in software documentation.
User Interface elements	Text that is displayed, or output, by the system for the user, like parts of the GUI, dialog boxes, buttons, menus, important information, or windows titles.
Weblinks and Reference	References to other documents or webpages, like weblinks, hypertext links, emails, but also cross references, that include a link the user can follow by clicking.

Table 1: Markup conventions used in this features reference .

Access mode

Abbreviation	Meaning
R/W	Feature is read or write.
R/(W)	Feature is readable, and it may be read or write depending on the user privilege level.
R/C	Feature is read-only and constant.
R	Feature is read-only and may change.
W	Feature is write-only.

Table 2: Abbreviations used in this features reference

Symbols and notes

This symbol highlights a practical tip that helps to better understand the camera‘s functionalities, and to make better use of it.

Safety-related instructions to avoid malfunctions

This symbol indicates important or specific instructions or procedures that are related to product safety. You need to follow these instructions to avoid malfunctions.

This symbol highlights URLs for further information.

Order and description scheme

This features reference describes categories and feature, as seen from **Vimba Viewer**, in alphabetical order.

The features in this reference are described according to this formatting scheme.

Category

First-level item, always starting a new page. Short description, including individual characteristics, and showing the feature type as *(Category)*.

Subcategory

Short description, including individual characteristics, and showing the feature type as *(Subcategory* or *2nd subcategory)*. The level is stated as:

- *(Subcategory)* after the category name: 1set level subcategory
- *(2nd subcategory)* after the category name: 2nd level

Feature

[Selector]

Short description of feature, including individual characteristics and possible values, and showing the full category path.

Selectors

Some features have multiple instances. For these features, Selector features define which instance of the feature is accessed.

Example: the `LineOutPolarity` feature, used to set the output signal polarity, can be applied to all output lines of the camera. The line is selected by the `LineOutSelector` feature.

The headline for the feature description is `LineOutPolarity[LineOutSelector]`, according to the C programming language convention for arrays: a pair of brackets follows the feature name, like in `SelectedFeature[Selector]`.

Invalidators

Some features have opposing functions. For example, `TestImage` generates a reference image to adjust the imaging system, while `DefectPixelCorrection` compensates for pixel errors on the individual image sensor. Therefore, when `TestImage` is enabled, `DefectPixelCorrection` must be disabled. Feature descriptions provide an additional row for opposing features, called **Affected features**.

Possible values

The following example table shows how parameter values for features are stated in this document.

Values	Description
Sensorboard	Feature value as displayed in **Vimba Viewer**
Camera dependent	Values vary between different camera models.
(Height)	Corresponding value for the `Height` feature
(Bit 31)	Bit value

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Image data flow and features order

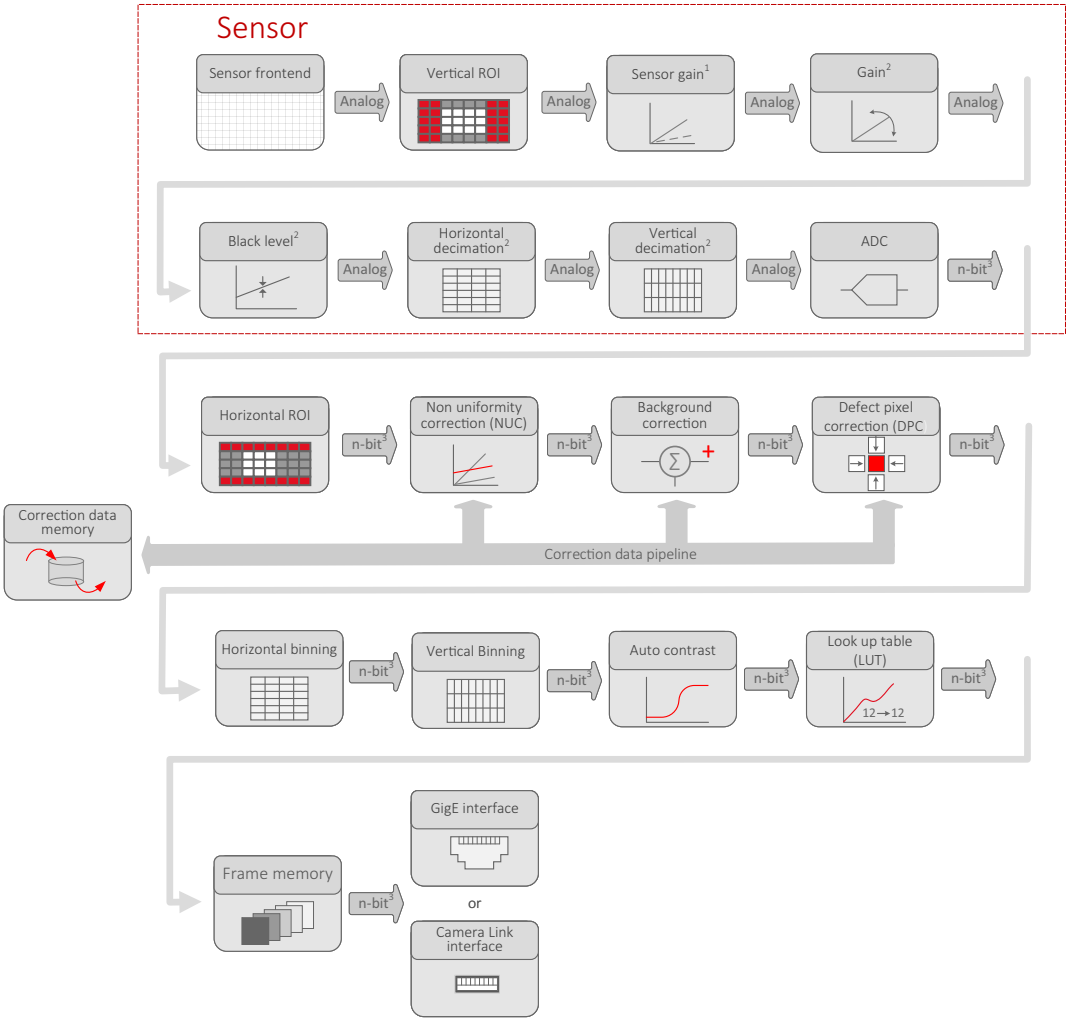
This chapter includes:

Image data flow

To develop your application effectively, note the order in which the features are processed in Goldeye G/CL cameras.

In the Goldeye G/CL User Guide, the image data flow describes the sequence of image processing steps inside the camera. The shown functionalities represent features or feature groups.

Note that, depending on firmware version, not all of the modules and features shown in Figure 1 are available.



[1] All Goldeye G/CL models, except for G/CL-030 and G/CL-130

[2] Goldeye G/CL-030 and G/CL-130 only

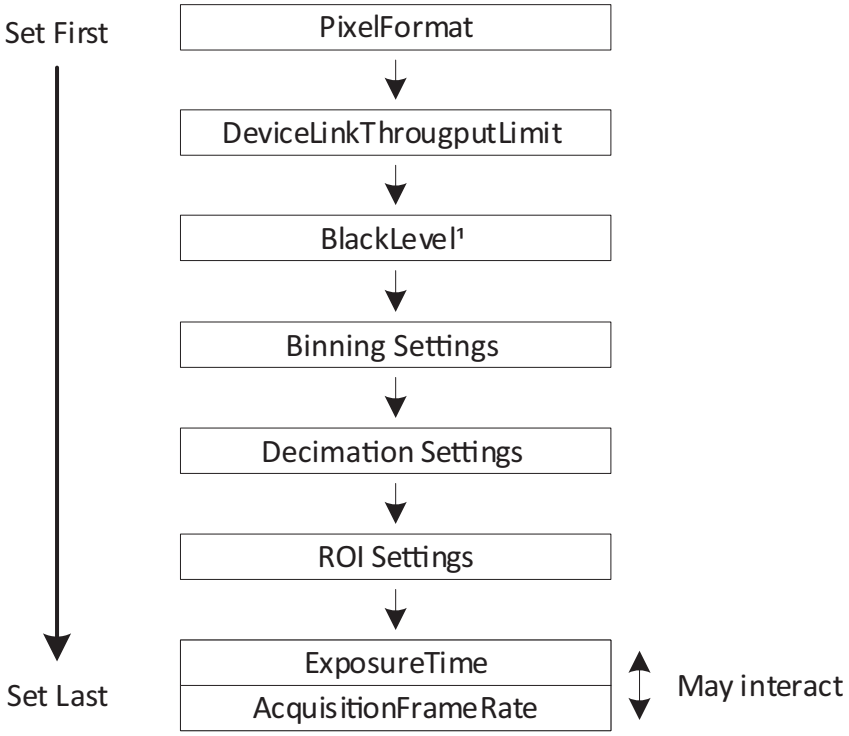
[3] Model dependent: See ADC bit depths in the Specifications chapter.

Figure 1: Goldeye G/CL image data flow

This behavior includes other features as well as described in Value changes by feature interdependencies on page 21.

Value changes by feature interdependencies

The conversion between time and clock cycles affects control values. Features for pixel format, bandwidth, ROI, exposure time, and triggering are related to each other. Changing values for one feature can change values for another feature. For example, frame rates can be reduced when `PixelFormat` is changed subsequently. Figure 2 shows the interdependencies.



[1] Goldeye G/CL-030 TEC1 and G/CL-130 TEC1 only

Figure 2: Interdependencies between features

Effects for the interdependent features

Changing one control's value affects other control's values, such as:

If: `Height` value is changed.
Then: Other values may be affected, such as for `AcquisitionFrameRate` and `ExposureTime`.

We recommend you to consider:

- The more features you adjust, the more current values deviate from previously set values.
- The same effects that apply to `ExposureTime`, also apply to `AutoExposure`.
- To avoid readjustments, apply settings in the order shown in Figure 2.

Feature description

This chapter describes the standard and advanced camera features, as seen from **Vimba Viewer**, for all Goldeye G/CL models, according to the GenICam SFNC (Standard Feature Naming Convention), listed by categories:

AcquisitionControl

This category includes all features related to image acquisition, including the trigger and exposure control. It describes the basic model for acquisition and the typical behavior of the device.

Display name	AcquisitionControl
Origin of feature	Camera
Feature type	(Category)

AcquisitionAbort

Software command to stop camera from receiving frame triggers and to abort the current acquisition immediately. A partially transferred image will be completed.

Display name	AcquisitionAbort
Origin of feature	Camera
Feature type	Command
Affected features	`AcquisitionStart` `AcquisitionStop`
Category	/AcquisitionControl

AcquisitionAutoStartMode

Determines the behavior of the camera after startup.

Display name	AcquisitionAutoStartMode
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Values	Description
On	The camera will acquire images immediately after startup
Off	The camera will not start to acquire images until `AcquisitionStart` (**default**).

AcquisitionFrameCount

Defines the number of frames to capture in a limited sequence of images. Used with `AcquisitionMode` = *`MultiFrame`* and `AcquisitionMode` = *`Recorder`*. In *`Recorder`* mode, `AcquisitionFrameCount` must not exceed `StreamHoldCapacity`.

Display name	AcquisitionFrameCount
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Frames
Affected features	(None)
Category	/AcquisitionControl

Values	Description
1	Minimum (**default**)
65,535	Maximum

AcquisitionFrameRate

If `TriggerMode[FrameStart] = Off` or `TriggerSource = FixedRate`, this feature specifies the frame rate. Depending on the exposure duration, the camera may not achieve the frame rate set here.

Display name	AcquisitionFrameRate
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Frames per second
Affected features	`ExposureTime` AcquisitionFrameRateLimit
Category	/AcquisitionControl

Values	Description
Camera dependent	All values

AcquisitionFrameRateLimit

The maximum frame rate possible for the current exposure duration and image format.

Display name	AcquisitionFrameRateLimit
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Frames per second
Affected features	`AcquisitionFrameRate` `ExposureTime`
Category	/AcquisitionControl

Values	Description
Camera dependent	All values

AcquisitionMode

Determines the behavior of the camera when acquisition start is triggered.

Display name	AcquisitionMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Values	Description
Continuous	After an acquisition start event, the camera will continuously acquire images until acquisition stop is triggered (**default**). See `TriggerSelector` and `TriggerSource` for more information.
SingleFrame	The camera will only acquire one single image. Further trigger events will be ignored until acquisition is stopped and restarted.
MultiFrame	The camera will acquire the number of images specified by `AcquisitionFrameCount`. Further trigger events will be ignored until acquisition is stopped and restarted.
Recorder	The camera will continuously record images into the camera's on-board memory, but will not send them to the host until an `AcquisitionRecord` trigger signal is received. Further `AcquisitionRecord` trigger events will be ignored until acquisition is stopped and restarted. Combined with `RecorderPreEventCount`, this feature is useful for returning any number of frames before a trigger event. When `AcquisitionRecord` trigger is received, the image currently imaging or acquiring will complete as normal, and then at least one more image will be taken. The memory is a circular buffer that starts rewriting images once it is full. Its size is determined by `AcquisitionFrameCount`.

AcquisitionStart

Software command to start camera receiving frame triggers. Valid when `TriggerMode[AcquisitionStart]` = *`Off`*.

Display name	AcquisitionStart
Origin of feature	Camera
Feature type	Command
Affected features	`AcquisitionStop` `AcquisitionAbort`
Category	/AcquisitionControl

AcquisitionStop

Software command to stop camera receiving frame triggers. Valid when `TriggerMode[AcquisitionStop]` = *`Off`*.

Display name	AcquisitionStop
Origin of feature	Camera
Feature type	Command
Affected features	`AcquisitionStart` `AcquisitionAbort`
Category	/AcquisitionControl

AutoModeParameters (subcategory)

This subcategory holds the parameter features for auto exposure and auto contrast.

Display name	AutoModeParameters
Origin of feature	Camera
Feature type	(Subcategory)
Category	/AcquisitionControl

AutoModeOutliersBright

Number of upper outliers to discard before calculating exposure adjustments. Specified in steps of 0.01 percent of the number pixels in the image.

Display name	AutoModeOutliersBright
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Percent
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
0	Minimum (**default** = no exclusion of bright pixels.)
10	Maximum
0.01	Interval

AutoModeOutliersDark

Number of lower outliers to discard before calculating exposure adjustments. Specified in steps of 0.01 percent of the number pixels in the image.

Display name	AutoModeOutliersDark
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Percent
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
0	Minimum (**default** = no exclusion of dark pixels.)
10	Maximum
0.01	Interval

AutoModeRegionDimOutside

Dimming the image outside the AutoRegion to make it visible.

Display name	AutoModeRegionDimOutside
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
On	Region of the image outside the AutoRegion is not dimmed.
Off	Region of the image outside the AutoRegion is dimmed (**default**).

AutoModeRegionHeight

Height of the auto mode region used in auto features such as auto exposure and auto contrast, relative to the current image region.

Display name	AutoModeRegionHeight
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
1	Minimum (**default =** equals sensor height)
Camera dependent	Maximum (**default =** equals sensor height)

AutoModeRegionOffsetX

Horizontal offset of the auto mode region used in auto features such as auto exposure and auto contrast, relative to the current image region and counted from its left border.

Display name	AutoModeRegionOffsetX
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum (equals sensor width)

AutoModeRegionOffsetY

Vertical offset of the auto mode region used in auto features such as auto exposure and auto contrast, relative to the current image region and counted from its top border.

Display name	AutoModeRegionOffsetY
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum (equals sensor height)

AutoModeRegionWidth

Width of the auto mode region used in auto features such as auto exposure and auto contrast, relative to the current image region.

Display name	AutoModeRegionWidth
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	(None)
Category	/AcquisitionControl/AutoModeParameters

Values	Description
1	Minimum
Camera dependent	Maximum (**default** = sensor width)

ContrastAutoControl (subcategory)

This subcategory holds the features to control the automatic contrast.

Display name	ContrastAutoControl
Origin of feature	Camera
Feature type	(Subcategory)
Category	/AcquisitionControl

ContrastAuto

Options to set contrast automatically or manually.

Display name	ContrastAuto
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Values	Description
`Off`	`ContrastAuto` is switched off (**default**).
`WholeImage`	Automatic contrast is calculated for the whole image.
`AutoModeRegion`	Automatic contrast is calculated for the defined region.
`UserWholeImage`	Contrast is set by the user for the whole image.
`UserModeAutoRegion`	Contrast is set by the user for the defined region.

Notes

- To define minimum and maximum values for *`UserWholeImage`* and *`UserModeAutoRegion`*, use `ContrastUserInputMin` and `ContrastUserInputMax`.
- Minimum and maximum values for *`WholeImage`* and *`AutoModeRegion`* are calculated automatically.

ContrastAutoIntensityMax

Maximum output intensity level.

Display name	ContrastAutoIntensityMax
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Counts
Affected features	(None)
Category	/AcquisitionControl/ContrastAutoControl

Values	Description
0	Minimum
255	Maximum and **default** value for Mono8
4,095	Maximum and **default** value for Mono12 or Mono12Packed
16,383	Maximum and **default** value for Mono14

ContrastAutoIntensityMin

Minimum output intensity level.

Display name	ContrastAutoIntensityMin
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Counts
Affected features	(None)
Category	/AcquisitionControl/ContrastAutoControl

Values	Description
0	Minimum and **default** value
255	Maximum value for Mono8
4,095	Maximum value for Mono12 or Mono12Packed
16,383	Maximum value for Mono14

ContrastUserInputMax

Maximum input intensity level that are mapped to `ContrastAutoIntensityMax`, if `ContrastAuto` is set to *`UserWholeImage`* or *`UserAutoRegion`*.

Display name	ContrastUserInputMax
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Counts
Affected features	(None)
Category	/AcquisitionControl/ContratAutoControl

Values	Description
`0`	Minimum
`255`	Maximum and **default** value for Mono8
`4,095`	Maximum and **default** value for Mono12 or Mono12Packed
`16,383`	Maximum and **default** value for Mono14

ContrastUserInputMin

Minimum input intensity level that are mapped to `ContrastAutoIntensityMin`, if `ContrastAuto` is set to *`UserWholeImage`* or *`UserAutoRegion`*.

Display name	ContrastUserInputMin
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Counts
Affected features	(None)
Category	/AcquisitionControl/ContratAutoControl

Values	Description
`0`	Minimum and **default** value
`255`	Maximum value for Mono8
`4,095`	Maximum value for Mono12 or Mono12Packed
`16,383`	Maximum value for Mono14

ExposureAutoControl (subcategory)

This subcategory holds the features to control the automatic exposure.

Display name	ExposureAutoControl
Origin of feature	Camera
Feature type	(Subcategory)
Category	/AcquisitionControl

ExposureAuto

Automatic exposure mode.

Display name	ExposureAuto
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
Off	Automatic mode is off (**default**).
Once	Automatic exposure occurs until the target value of the selected auto control algorithm is achieved, then `ExposureAuto` returns to *Off*.
Continuous	Automatic exposure always runs.
Other	The duration of an external trigger pulse directly controls the duration of the exposure.

ExposureAutoAdjustTol

Tolerance, allowed from the ideal target value. Within the given tolerance the automatic exposure does not run.

This prevents needless small adjustments from occurring in each image, when the image content changes relatively slowly from frame to frame.

Display name	ExposureAutoAdjustTol
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Percent
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
0	Minimum
5	**Default**
50	Maximum

ExposureAutoAlg

Algorithm used for calculating the automatic exposure.

Display name	ExposureAutoAdjustTol
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
Mean	Target a particular mean value of all measured pixels within the `AutoModeRegion` area. The target value itself is set by `ExposureAutoTarget`.
FitRange	Adjust the maximum pixel value within the `AutoModeRegion` area to fit the sensor dynamic range.

ExposureAutoMax

Maximum automatic exposure value.

Display name	ExposureAutoMax
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
Camera dependent	Minimum
50,0000	*Default*
Camera dependent	Maximum

ExposureAutoMin

Minimum automatic exposure value.

Display name	ExposureAutoMin
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
Camera dependent	All values

ExposureAutoRate

Rate of automatic exposure adjustments.

Use this feature to slow down the automatic exposure adjustments.

Display name	ExposureAutoRate
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Percent
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
1	Minimum (slowest)
100	Maximum (Fastest, **default**)

ExposureAutoTarget

Only valid if `ExposureAutoAlg` is *Mean*.

This is the target image mean value. Higher values result in brighter images.

Display name	ExposureAutoTarget
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Percent
Affected features	(None)
Category	/AcquisitionControl/ExposureAutoControl

Values	Description
10	Minimum
50	Default
90	Maximum

AcquisitionControl (continued)

The feature descriptions for the `ExposureAutoControl` subcategory have ended on the previous page. The following features continue the `AcquisitionControl` category, without a subcategory.

ExposureMode

Method of control for exposure duration.

Display name	ExposureMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Possible value	Description
`Timed`	Exposure duration is set by `ExposureTime` (**default**).

ExposureRangeMode

Selects between different ranges for exposure time.

Notes

- The exposure time is locked when the camera is streaming in *`UltraShort`* mode.
- `ExposureAutoControl` is not supported if *`UltraShort`* mode is active.

Display name	Exposure Range Mode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`ExposureTime, ExposureAutoControl`
Category	/AcquisitionControl

Values	Description
`Normal`	Normal exposure time range (camera dependent), **default**
`UltraShort`[1]	Allows to select exposure times in the range from 3 µs to 7 µs.

[1]The *`UltraShort`* mode is **available only for** Goldeye G/CL-030 TEC1 and Goldeye G/CL 130 TEC1 cameras.

ExposureTime

The sensor integration time.

Display name	ExposureTime
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Microseconds
Affected features	`AcquisitionFrameRate` `AcquisitionFrameRateLimit`
Category	/AcquisitionControl

Values	Description
Camera dependent	All values

IntegrationMode

The sensor integration mode.

Display name	IntegrationMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W

Affected features	`AcquisitionFrameRateLimit`
	`AcquisitionFrameRate`
	`ExposureTime`

Category	/AcquisitionControl

Values	Description
`IntegrateThenRead`	The integration is not allowed to overlap with the readout.
`IntegrateWhileRead`	The integration is allowed to overlap with the readout.

Note: Default values are model dependent.

RecorderPreEventCount

Only valid if `AcquisitionMode` = *`Recorder`*.

The number of frames returned before the `AcquisitionRecord` trigger event, with `AcquisitionFrameCount` minus `RecorderPreEventCount` frames being returned after the `AcquisitionRecord` trigger event.

`RecorderPreEventCount` must be less than or equal to `AcquisitionFrameCount`.

At least one image must be captured after the AcquisitionRecord trigger event, i.e., you cannot set `RecorderPreEventCount` = *`1`*, and `AcquisitionFrameCount` = *`1`*.

Display name	RecorderPreEventCount
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Unit	Frames
Affected features	(None)
Category	/AcquisitionControl

Values	Description
`0`	Minimum (**default**)
`65,535`	Maximum

TriggerActivation

[TriggerSelector]

Type of activation for hardware triggers. This controls edge and level, and polarity sensitivities.

Display name	TriggerActivation
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Values	Description
`RisingEdge`	Rising edge trigger (**default**)
`FallingEdge`	Falling edge trigger
`AnyEdge`	Rising or falling edge
`LevelHigh`	Active high signal
`LevelLow`	Active low signal

TriggerDelay

[TriggerSelector]

Start-of-image can be delayed to begin at a time after a trigger event is received by the camera. This feature is valid only when `TriggerSource` is set to external trigger, for example, Line1 or Line2. This feature is commonly used to synchronize with a strobe lighting source, which will inherently have some fixed setup time.

Display name	TriggerDelay
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/AcquisitionControl

Values	Description
`0`	Minimum (**default**)
Camera dependent	Maximum

TriggerMode

[TriggerSelector]

Enables or disables trigger set in `TriggerSelector`.

Display name	TriggerMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Possible	Description
Off	Trigger disabled.
On	Trigger enabled (**default**).

If `TriggerMode[FrameStart]` = *Off*, images are triggered in *FixedRate* at `AcquisitionFrameRate`.

TriggerOverlap

[TriggerSelector]

Permitted window of trigger activation, relative to previous frame. Does not work with software triggering. Only usable for external triggering.

Display name	TriggerOverlap
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AcquisitionControl

Values	Description
Off	Any external trigger received before a high *FrameTriggerReady* signal is ignored (**default**).
PreviousFrame	Any external trigger received before `FrameTriggerReady` is latched and used to trigger the next frame

TriggerSelector

This feature can be considered to be an index for the following list of affected features. It selects, which instance of each affected feature is addressed when accessing them.

- `TriggerMode`
- `TriggerSoftware`
- `TriggerSource`
- `TriggerActivation`
- `TriggerOverlap`
- `TriggerDelay`

Display name	TriggerSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`TriggerMode, TriggerSoftware, TriggerSource, TriggerActivation, TriggerOverlap,TriggerDelay,`
Category	/AcquisitionControl

Values	Description
`FrameStart`	The trigger that starts an image when acquisition is running **default**.
`AcquisitionStart`	The trigger that starts the acquisition process
`AcquisitionEnd`	The trigger that ends the acquisition process
`AcquisitionRecord`	(**Available only for** GigE Vision models.) The trigger that initiates the sending of `AcquisitionFrameCount` number of recorded images from the camera on-board memory to the host.

TriggerSoftware

[TriggerSelector]

Triggers an image. Valid if `TriggerSource` = *`Software`*.

Display name	TriggerSoftware
Origin of feature	Camera
Feature type	Command
Affected features	(None)
Category	/AcquisitionControl

TriggerSource

[TriggerSelector]

Determines how an image frame is initiated within an acquisition stream.

An acquisition stream must be started in order to trigger or receive individual frames. For ***Freerun*** and ***FixedRate*** the first frame is synchronized to `AcquisitionStart` trigger.

Display name	TriggerSource
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/AcquisitionControl

Values	Description
Freerun	Camera runs at maximum supported frame rate depending on the exposure time and ROI size (**default**)
Line1	External trigger Line1
Line2	External trigger Line2
FixedRate	Camera self-triggers at a fixed frame rate defined by `AcquisitionFrameRate`
Software	Software initiates image capture
CC1	(Camera Link models only) External trigger signal CC1 from frame grabber
CC2	(Camera Link models only) External trigger signal CC2 from frame grabber
CC3	(Camera Link models only) External trigger signal CC3 from frame grabber
CC4	(Camera Link models only) External trigger signal CC4 from frame grabber

AnalogControl

Features in this category describe how to control the sensor's analog features.

Display name	AnalogControl
Origin of feature	Camera
Feature type	(Category)

BlackLevel

Controls the analog black level as an absolute physical value. The feature represents a DC offset applied to the video signal.

Display name	BlackLevel
Origin of feature	Camera
Availability	G/CL-030 TEC1 and G/CL-130 TEC1
Feature type	Integer
Access	R/W
Category	/AnalogControl

Values	Description
0	Minimum (**default**)
255	Maximum for Mono8
4,095	Maximum for Mono12 and Mono12p
1	Increment

Gain

Sets the analog gain level of the sensor.

Display name	Gain
Origin of feature	Camera
Availability	G/CL-030 TEC1 and G/CL-130 TEC1 For other models, see `SensorGain`.
Feature type	Float
Access	R/W
Unit	dB
Category	/AnalogControl

Values	Description
`0.0`	Minimum gain level: 0 dB.
`18.0`	Maximum gain level: 18 dB.

SensorGain

Sets the FPA gain level.

Display name	SensorGain
Origin of feature	Camera
Availability	All models, except for G/CL-030 TEC1 and G/CL-130 TEC1, For G/CL-030 TEC1 and G/CL-130 TEC1, see `Gain`.
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/AnalogControl

Values	Description
`Gain0`	Sets FPA gain to the lowest level (**default**)
`Gain1`	Sets FPA gain to the first higher level (if available; higher than Gain0)
`Gain2`	Sets FPA gain to the second higher level (if available; higher than Gain1)

BufferHandlingControl

Features in this category control the buffer of the image stream.

Display name	BufferHandlingControl
Origin of feature	Camera
Feature type	(Category)

StreamAnnounceBufferMinimum

Minimal number of buffers to announce to enable selected acquisition mode.

Display name	StreamAnnounceBufferMinimum
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Vimba	V1.3 or later
Category	/BufferHandlingControl

Values	**Description**
Camera dependent	All values

StreamAnnounceBufferCount

Number of announced (known) buffers on this stream.

Display name	StreamAnnounceBufferCount
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Vimba	V1.3 or later
Category	/BufferHandlingControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

StreamBufferHandlingMode

Available buffer handling modes of this stream.

Display name	StreamBufferHandlingMode
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Enumeration
Access	R/W
Affected features	StreamAcquisitionModeSelector
Vimba	V1.3 or later
Category	/BufferHandlingControl

Values	Description
Default	Default

ChunkDataControl

Chunks are tagged blocks of data. The tags allow a chunk parser to dissect the data payload into its elements and to identify the content.

All features related to chunk data control are supported by GigE models only.

Display name	ChunkDataControl
Origin of feature	Camera
Feature type	(Category)

ChunkModeActive

Enables camera to send GigE Vision Standard Protocol chunk data with an image. `ChunkModeActive` is read-only during acquisition. The following table presents currently implemented chunk data.

`ChunkModeActive` provide only the read permission during acquisition.

Display name	ChunkModeActive
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W
Affected features	`NonImagePayloadSize` `PayloadSize`
Category	/ChunkDataControl

Values	Description
`True`	The camera streams frames consisting of chunks, where also the image is a chunk.
`False`	The camera streams frames where the payload consists of the image only (**default**).

If	Then
`ChunkModeActive` = *`False`*	`NonImagePayloadSize` = *`0`*
`ChunkModeActive` = *`True`*	`NonImagePayloadSize` = *`48`*

Bytes	Description
(Bytes 01 to 04)	Acquisition count
(Bytes 05 to 08)	Reserved. *0*
(Bytes 09 to 12)	Exposure value in µs.
(Bytes 13 to 16)	Reserved. *0*
(Bytes 17 to 18)	Line in levels. A bit field. Bit 0 is Line in 0, bit 1 is Line in 1, and so on. A bit value of *1* = level high, and a bit value of *0* = level low.
(Bytes 19 to 20)	Line out levels. A bit field. Bit 0 is Line out 0, bit 1 is Line out 1, and so on. A bit value of *1* = level high, and a bit value of *0* = level low.
(Bytes 21 to 24)	Reserved. *0*
(Bytes 25 to 28)	Reserved. *0*
(Bytes 29 to 32)	Reserved. *0*
(Bytes 33 to 36)	Reserved. *0*
(Bytes 37 to 40)	Reserved. *0*
(Bytes 41 to 44)	Chunk ID. *1000*
(Bytes 45 to 48)	Chunk length.

NonImagePayloadSize

Maximum size of chunk data, not including the image chunk, in the image block payload.

Display name	NonImagePayloadSize
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Bytes
Affected features	(None)
Category	/ChunkDataControl

If	Then
`ChunkModeActive` = *`False`*	`NonImagePayloadSize` = *0*
`ChunkModeActive` = *`True`*	`NonImagePayloadSize` = *48*

DeviceControl

Device control features provide general information, control and state of the device (camera) and its sensor.

Display name	DeviceControl
Origin of feature	Camera
Feature type	(Category)

BandwidthControlMode

Selects the desired mode of bandwidth control.

Bandwidth allocation can be controlled by `DeviceLinkThroughputLimit` or by register `SCPD0`.

SCPD related warning

If you are not familiar with `SCPD0` and how this driver uses this register, leave this set to ***`DeviceLinkThroughputLimit`***.

Display name	BandwidthControlMode
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
`DeviceLinkThroughputLimit`	See the ***`DeviceLinkThroughputLimit`*** feature for more information (**default**).
SCPD	Stream channel packet delay expressed in timestamp counter units. This mode may be used to limit the rate of data from the camera to the host. It works by inserting a delay between successive stream channel packets, e.g. the longer the delay, the slower the data rate. This mode is NOT recommended.
Both	Implements a combination of control modes. This mode is NOT recommended.

DeviceBaudRateSwitchConfirmTimeout

Timeout for a confirmation write while switching the data transmission rate to a new value. The device falls back to the previous transmission rate, if the change is not confirmed within the time set here.

Applies to the GenCP control link on Camera Link devices. If set to ***0xFFFFFFFF***, the confirmation write requirement is disabled.

Display name	DeviceBaudRateSwitchConfirmTimeout
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Milliseconds
Affected features	(None)
Category	/DeviceControl

Values	**Description**
Camera dependent	Minimum
250	**Default**
Camera dependent	Maximum

DeviceClockFrequency

[DeviceClockSelector]

Returns the frequency of the clock selected by `DeviceClockSelector`.

Display name	DeviceClockFrequency
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Float
Access	R/C
Unit	Microseconds
Affected features	(None)
Category	/DeviceControl

DeviceClockSelector

Returns the device clock the frequency of which is returned by `DeviceClockFrequency`.

Display name	DeviceClockSelector
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Enumeration
Access	R/C
Affected features	(None)
Category	/DeviceControl

Values	Description
CameraLink	Default

DeviceFamilyName

Identifier of the product family of the device.

Display name	DeviceFamilyName
Origin of feature	Camera
Feature type	String
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceFanMode

[DeviceFanSelector]

Enables or disables the fan.

Display name	DeviceFanMode
Origin of feature	Camera
Availability	Cool models only
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
On	Turns the device fan on (**default**).
Off	Turns the device fan off.

DeviceFanRpm

[DeviceFanSelector]

Current rotation speed of the fan.

Display name	DeviceFanRpm
Origin of feature	Camera
Availability	Cool models only
Feature type	Integer
Access	R
Unit	min^{-1}
Affected features	(None)
Category	/DeviceControl

Values	Description
0	Minimum
Camera dependent	Maximum

DeviceFanSelector

Selects the fan to be controlled by `DeviceFanMode` and `DeviceFanRpm`.

Display name	DeviceFanSelector
Origin of feature	Camera
Availability	Cool models only
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
Main	Selects the main fan.

DeviceFirmwareVersion

Firmware version of this Allied Vision GigE camera.

Display name	DeviceFirmwareVersion
Origin of feature	Camera
Feature type	String
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceLinkHeartbeatTimeout

[DeviceLinkSelector]

Controls the current heartbeat timeout of the link selected by `DeviceLinkSelector`.

Display name	DeviceLinkHeartbeatTimeout
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/DeviceControl

Values	Description
500,000	Minimum
3,000,000	Default
Camera dependent	Maximum
1,000	Increment

DeviceLinkSelector

Selects which link of the device to control.

Display name	DeviceLinkSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
0	Minimum
0	Maximum

DeviceLinkThroughputLimit

Throttles the data rate of the camera. This is particularly useful for slowing the camera down so that it can operate over slower links such as Fast Ethernet (100-speed), or wireless networks. It is also an important feature for multi-camera situations. When multiple cameras are connected to a single Gigabit Ethernet port (usually through a switch), `DeviceLinkThroughputLimit` for each camera needs to be set to a value so that the sum of all camera's `DeviceLinkThroughputLimit` parameter does not exceed the data rate of the GigE port. Taking care that this condition is fulfilled will ensure that multiple camera setups work without packet collisions, i.e. data loss.

To calculate the required minimum `DeviceLinkThroughputLimit` setting for a camera in any image mode, use the following formula:

DeviceLinkThroughputLimit = Height × Width × FrameRate × Bytes per Pixel

115,000,000 is the typical maximum data rate for a GigE port. Beyond this setting, some network cards will drop packets.

If you are seeing occasional frames or packets reported as `StatFrameDropped` or `StatPacketMissed` you will likely need to decrease this parameter.

Display name	DeviceLinkThroughputLimit
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Unit	Bytes per second

Affected features	`AcquisitionFrameRateLimit`
	`AcquisitionFrameRate`
	`ExposureTime`

Category	/DeviceControl

Values	Description
1,000,000	Minimum
115,000,000	Note: when setting this value, omit the commas. Digit grouping is displayed only for documentation purposes. (**Default**)
124,000,000	Maximum

DeviceLinkThroughputLimitMode

Controls if the `DeviceLinkThroughputLimit` is active. When disabled, lower level Transport Layer specific features are expected to control the throughput. When enabled, `DeviceLinkThroughputLimit` controls the overall throughput.

Display name	DeviceLinkThroughputLimitMode
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W

Affected features	`StreamFrameRateConstrain`
	`AcquisitionFrameRateLimit`
	`AcquisitionFrameRate`
	`ExposureTime`

Category	/DeviceControl

Values	Description
`On`	Camera automatically limits frame rate to bandwidth, determined by `DeviceLinkThroughputLimit`, to prevent camera buffer overflows and dropped frames (**default**).
`Off`	Frame rate is not limited to bandwidth but by sensor readout time. Latter case is useful for `AcquisitionMode` = *`Recorder`* or `StreamHoldEnable` = *`On`* modes, as these modes are not bandwidth limited.

DeviceManufacturerInfo

Part code and flags of this Allied Vision camera.

Example entry: `Goldeye G-008|4068080|`

Display name	DeviceManufacturerInfo
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/DeviceControl

DeviceModelName

Camera family and model name, such as Goldeye G-032. Software should use the `DevicePartNumber` to distinguish between models.

Display name	DeviceModelName
Origin of feature	Camera
Feature type	String
Access	R/C
Affected features	(None)
Category	/DeviceControl

Values	Description
(Goldeye cameras)	Family name, model name, and number of the camera

DeviceRelativeHumidity

[DeviceRelativeHumiditySelector]

Relative humidity, in percent, measured at the location selected in `DeviceRelativeHumiditySelector`.

Display name	DeviceRelativeHumidity
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Percent
Affected features	(None)
Category	/DeviceControl

Values	Description
0	Minimum
100	Maximum

DeviceRelativeHumiditySelector

Selects the location for measuring relative humidity.

Display name	DeviceRelativeHumiditySelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`DeviceRelativeHumidity`
Category	/DeviceControl

Values	Description
Sensorboard	Location of measuring device

DeviceReset

Resets the device to its power up state.
After reset, the device must be rediscovered.

Display name	DeviceReset
Origin of feature	Camera
Feature type	Command
Access	W
Affected features	(None)
Category	/DeviceControl

DeviceSFNCVersionMajor

Major part of the SFNC version number (part before the decimal).

Display name	DeviceSFNCVersionMajor
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceSFNCVersionMinor

Minor part of the SFNC version number (part after the decimal).

Display name	DeviceSFNCVersionMinor
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceSFNCVersionSubMinor

Subordinate part of the firmware Minor number (part after the minor).

Display name	DeviceSFNCVersionSubMinor
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceScanType

Scan type of the camera.

Display name	DeviceScanType
Origin of feature	Camera
Feature type	Enumeration
Access	R/C
Affected features	(None)
Category	/DeviceControl

Values	Description
Areascan	Default

DeviceSerialNumber

Serial number of the camera.

Display name	DeviceSerialNumber
Origin of feature	Camera
Feature type	String
Access	R/C
Affected features	(None)
Category	/DeviceControl

DeviceSerialPortBaudRate

[DeviceSerialPortSelector]

Controls the data transmission rate used by the selected serial port. Note that exactly one bit must be set.

Display name	DeviceSerialPortBaudRate
Origin of feature	Camera
Feature type	Enumeration
Access	R/(W)
Affected features	(None)
Category	/DeviceControl

Values	Description
Baud9600	Serial port runs at 9600 bits/second (**default**)
Baud19200	Serial port runs at 19200 bits/second
Baud38400	Serial port runs at 38400 bits/second
Baud57600	Serial port runs at 57600 bits/second
Baud115200	Serial port runs at 115200 bits/second
Baud230400	Serial port runs at 230400 bits/second
Baud460800	Serial port runs at 460800 bits/second
Baud921600	Serial port runs at 921600 bits/second
Baud931600	Serial port runs at 931600 bits/second

DeviceSerialPortSelector

Selects which serial port of the device to control.

Display name	DeviceSerialPortSelector
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Enumeration
Access	R/W
Affected features	`DeviceSerialPortBaudrate`
Category	/DeviceControl

Values	Description
`CameraLink`	Default

DeviceStreamChannelPacketSize

[DeviceStreamChannelSelector]

Specifies the stream packet size to send on the selected channel for the camera or specifies the maximum packet size supported by the receiver.

Display name	DeviceStreamChannelPacketSize
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/W

Affected features	`DeviceLinkThroughputLimit`
	`AcquisitionFrameRateLimit`
	`AcquisitionFrameRate`
	`ExposureTime`
	`GevSCPSPacketSize`
	`StreamHoldCapacity`
	`GVSPPacketSize`

Category	/DeviceControl

Values	Description
`500`	Minimum
`1,500`	**Default**
Camera dependent	Maximum

DeviceStreamChannelSelector

Selects the stream channel to control.

Display name	DeviceStreamChannelSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

DeviceTemperature

[DeviceTemperatureSelector]

Device temperature, measured at the location selected by `DeviceTemperatureSelector`.

Display name	DeviceTemperature
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Degree Celsius (°C)
Affected features	(None)
Category	/DeviceControl

Values	Description
Camera dependent	Range

DeviceTemperatureSelector

Selects one of the build-in temperature sensors within the camera.

Display name	DeviceTemperatureSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`DeviceTemperature`
Category	/DeviceControl

Values	Description
`Sensor`	Temperature sensor beside the camera sensor (**default**).
`Sensorboard`	Temperature sensor on the sensor board.
`Mainboard`	Temperature sensor on the main board.

DeviceTLType

Defines the transport layer type.

Display name	DeviceTLType
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/DeviceControl

Values	Description
`GigEVision`	Default for GigE Vision models
`CameraLink`	Default for Camera Link models

DeviceType

Type of the camera.

Display name	DeviceType
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/DeviceControl

Values	Description
Transmitter	Default

DeviceUserID

Used for example in multiple-camera setups for providing meaningful labels to individual cameras.

Display name	DeviceUserID
Origin of feature	Camera
Feature type	String
Access	R/W
Affected features	(None)
Category	/DeviceControl

DeviceVendorName

Manufacturer‘s name.

Display name	DeviceVendorName
Origin of feature	Camera
Feature type	String
Access	R/C
Affected features	(None)
Category	/DeviceControl

Values	Description
Allied Vision	Default

SensorBoardSettings (subcategory)

This subcategory holds settings special to the sensor board.

Display name	SensorBoardSettings
Origin of feature	Camera
Feature type	(Subcategory)
Category	/DeviceControl

FpaTCDS

Adjusts the amount of time from the end of the integrator reset until the first sample in CDS mode.

Note: `FpaTCDS` is **available only for** all Goldeye G/CL-034 models.

Category path

The path for FpaTCDS is /DeviceControl/SensorBoardSettings/FocalPlaneArray/FpaControlRegisters/FpaTCDS.

Display name	FpaTCDS
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/DeviceControl/SensorBoardSettings/FocalPlaneArray/FpaControlRegisters

Values	Description
0	Minimum value
15	Maximum value

TIDC_Mode

Trigger-induced distortion correction mode.

Category path

The path for `TIDC_Mode` is /DeviceControl/SensorBoardSettings/TriggerInducedDistortionCorrection/TIDC_Mode.

Display name	TIDC_Mode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DeviceControl/SensorBoardSettings/TriggerInducedDistortionCorrection

Values	Description
`Off`	No correction is applied.
`LineGlitchOnly`	Reduces the effect of the horizontal line.
`BrightnessStep`	Levels the brightness above and below the horizontal line.
`BothDistortions`	Applies corrections for both distortions (**default**).

DeviceControl (continued)

The feature descriptions for the `SensorBoardSettings/TriggerInducedDistortionCorrection` subcategory have ended on the previous page. The following features continue the `DeviceControl` category, without a subcategory.

SensorCoolingPower

Current TEC device power consumption. Negative values indicate that the sensor is heated by the TEC.

Display name	SensorCoolingPower
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Milliwatts
Affected features	(None)
Category	/DeviceControl

Values	Description
Camera dependent	Minimum
Camera dependent	Maximum

SensorTemperatureControlMode

Defines the control mode for the Peltier element of the sensor. If set to `TemperatureControl`, sensor temperature is stabilized to the given set of setpoints.

Display name	SensorTemperatureControlMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`SensorTemperatureTargetSetpoint`, `SensorTemperatureSetpointActive`
Category	/DeviceControl

Values	Description
`Off`	No sensor temperature control
`TemperatureControl`	Regulates the sensor temperature by cooling (not heating), aiming to stabilize it at `SensorTemperatureSetpointValue` of the activated `SensorTemperatureSetpointActive` (**default**).
`TemperatureControlTarget`	(Only G/CL-008 models) Regulates the sensor temperature by heating and cooling, aiming to stabilize it at *`SensorTemperatureSetpointValue`* of the activated `SensorTemperatureSetpointActive`. Activates the feature `SensorTemperatureTargetSetpoint` that sets the active `SensorTemperatureSetpointActive.`

SensorTemperatureControlState

Status of the sensor temperature control, which is indicated by the temperature status LED.

Display name	SensorTemperatureControlState
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/DeviceControl

Values	Description
`Off`	Sensor temperature control is off.
`Deviated`	Sensor temperature deviates from the setpoint value.
`Stable`	Sensor temperature is stable at the setpoint.
`LowerLimit`	Cooling regulator is working at its lower limit.
`UpperLimit`	Cooling regulator is working at its upper limit.
`Alert`	Camera temperature has reached an overheat protection threshold temperature, the cooling and the sensor are powered off to protect the camera and let it cool down.

SensorTemperatureSetpointActivate

[SensorTemperatureSetpointSelector]

Activates the currently selected setpoint, which is represented by `SensorTemperatureSetpointSelector`.

Display name	SensorTemperatureSetpointActivate
Origin of feature	Camera
Feature type	Command
Affected features	(None)
Category	/DeviceControl

SensorTemperatureSetpointActive

[SensorTemperatureSetpointSelector]

Displays the active setpoint.

Display name	SensorTemperatureSetpointActive
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/DeviceControl

Values	Description
1	Displays the lowest defined temperature setpoint for all Goldeye cameras.
2	Displays the second defined temperature setpoint for all Goldeye cameras.
3	Displays the third defined temperature setpoint for all Goldeye cameras (highest for Goldeye G-032 Cool).
4	(**Not available** for Goldeye G-032 Cool) Displays the highest possible definable temperature setpoint.

SensorTemperatureSetpointMode

[SensorTemperatureSetpointSelector]

Controls the setpoint mode for the TEC. Allows to set either the manual or automatic selection of setpoints.

Activates the currently selected `SensorTemperatureSetpoint`.

Display name	SensorTemperatureSetpointMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DeviceControl

Values	Description
`Manual`	Select the setpoint manually. The active setpoint is presented by `SensorTemperatureSetpointActive` and it can be changed by the following ways: • `SensorTemperatureSetpointSelector` and *`SensorTemperatureSetpointActivate`* in succession • `SensorTemperatureTargetSetpoint` in `TemperatureControlTarget` mode
`Auto`	The setpoint is selected automatically (**default**).

SensorTemperatureSetpointSelector

Selects the setpoint to be activated.

Only valid if `SensorTemperatureSetpointMode` is set to *`Manual`*.

Display name	SensorTemperatureSetpointSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	`SensorTemperatureSetpointValue`
Category	/DeviceControl

Values	Description
1	Lowest defined temperature setpoint for all Goldeye cameras (**default** for Goldeye G-032 Cool).
2	Second defined temperature setpoint for all Goldeye cameras (**default** for G/CL-008, G/CL-032, G/CL-033).
3	Third defined temperature setpoint for all Goldeye cameras (highest for Goldeye G-032 Cool).
4	(**Not available** for Goldeye G-032 Cool) Highest possible definable temperature setpoint.

SensorTemperatureSetpointValue

[SensorTemperatureSetpointSelector]

The setpoint temperature, corresponding to the setpoint selected in `SensorTemperatureSetpointSelector`.

Refer to the Goldeye G/CL Technical Manual to see which temperature is pre-assigned to each setpoint.

Display name	SensorTemperatureSetpointValue
Origin of feature	Camera
Feature type	Float
Access	R/W
Unit	Degree Celsius (°C)
Affected features	(None)
Category	/DeviceControl

SensorTemperatureTargetSetpoint

The setpoint that the camera tries to keep, using cooling and heating capabilities, if `SensorTemperatureControlMode` is set to *`TemperatureControlTarget`*.

The selected setpoint is automatically activated.

Decrementing to setpoints lower than *`TargetSetpoint`* by `SetpointMode` *`Auto`* is disabled.

Display name	SensorTemperatureTargetSetpoint
Origin of feature	Camera
Availability	G/CL-008 TEC1, G/CL-008 Cool TEC1, G/CL-030TEC1, G/CL-130TEC1
Feature type	Integer
Access	R/W
Affected features	`SensorTemperatureSetpointActive`
Category	/DeviceControl

Values	Description
1	Lowest defined temperature setpoint for all Goldeye cameras.
2	Second defined temperature setpoint for all Goldeye cameras (**default**).
3	Third defined temperature setpoint for all Goldeye cameras.
4	Highest possible definable temperature setpoint.

TimestampLatch

Captures timestamp and stores it in `TimestampLatchValue`.

Display name	TimestampLatch
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Command

Affected features	`GevTimestampControlLatch`
	`GevTimestampControlReset`
	`TimestampReset`

Category	/DeviceControl

TimestampReset

Resets the camera's timestamp to *0*.

Display name	TimestampReset
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Command
Affected features	(None)
Category	/DeviceControl

TimestampLatchValue

Value of `Timestamp`, when latched by `TimestampLatch`.

Display name	TimestampLatchvalue
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Camera clock ticks
Affected features	`GevTimestampValue`
Category	/DeviceControl

DigitalIOControl

This category contains the digital I/O control features.

Display name	DigitalIOControl
Origin of feature	Camera
Feature type	(Category)

LineIn

This category contains the digital input control features.

Display name	LineIn
Origin of feature	Camera
Feature type	(Category)
Category	/DigitalIOControl

LineInGlitchFilter

[LineInSelector]

This feature is used to suppress glitches on the `LineIn` input line that is selected by `LineInSelector`. The value defines the maximum width of a glitch that can be suppressed.

Setting `LineInGlitchFilter` value causes a latency of `FrameTrigger` by the same amount.

Display name	LineInGlitchFilter
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Nanoseconds
Affected features	(None)
Category	/DigitalIOControl/LineIn

Values	Description
0	Minimum (**default** = disabled)
50,000	Maximum

LineInLevels

A register that represents the current state of the available input lines. For example, when this value returns ***2*** (***0010***), `LineIn2` is high and all other Line input signals are low.

Display name	LineInLevels
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/DigitalIOControl/LineIn

Values	Description
(Bit 31)	Status of LineIn1
(Bit 29)	Status of LineIn2
(Bit 27)	(Camera Link models only) Status of CC1
(Bit 26)	(Camera Link models only) Status of CC2
(Bit 25)	(Camera Link models only) Status of CC3
(Bit 24)	(Camera Link models only) Status of CC4

LineInSelector

Select which `LineIn` to control with `LineInGlitchFilter`.

Display name	LineInSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`LineInGlitchFilter`
Category	/DigitalIOControl/LineIn

Values	Description
`LineIn1`	`LineInGlitchFilter` controls *`LineIn1`* (**default**).
`LineIn2`	`LineInGlitchFilter` controls *`LineIn2`*.
`CC1`	(Camera Link models only) `LineInGlitchFilter` controls *`CC1`*.
`CC2`	(Camera Link models only) `LineInGlitchFilter` controls *`CC2`*.
`CC3`	(Camera Link models only) `LineInGlitchFilter` controls *`CC3`*.
`CC4`	(Camera Link models only) `LineInGlitchFilter` controls *`CC4`*.

LineOut

This category contains the digital output control features. Digital outputs are used for synchronization purposes with other cameras and devices or as general purpose outputs.

Display name	LineOut
Origin of feature	Camera
Feature type	(Category)
Category	/DigitalIOControl

LineOutLevels

Each bit in this feature represents the state of the related digital output line when it is configured to operate in GPO mode.

`LineOutPolarity` can invert the `LineOutLevels`.

Display name	LineOutLevels
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/DigitalIOControl/LineOut

Values	Description
0	`LineOut1` low, `LineOut2` low, `LineOut3` low
1	`LineOut1` high, `LineOut2` low, `LineOut3` low
2	`LineOut1` low, `LineOut2` high, `LineOut3` low
3	`LineOut1` high, `LineOut2` high, `LineOut3` low
4	`LineOut1` low, `LineOut2` low, `LineOut3` high
5	`LineOut1` high, `LineOut2` low, `LineOut3` high
6	`LineOut1` low, `LineOut2` high, `LineOut3` high
7	`LineOut1` high, `LineOut2` high, `LineOut3` high

LineOutPolarity

[LineOutSelector]

Polarity applied to the `LineOut` specified by `LineOutSelector`.

`LineOutPolarity` also affects the related digital output line when it is configured to GPO mode.

Display name	LineOutPolarity
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DigitalIOControl/LineOut

Values	Description
Normal	Normal polarity (**default**)
Invert	Polarity is inverted.

LineOutSelector

Selects the LineOut to control using the `LineOutSource` and `LineOutPolarity` features.

Display name	LineOutSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`LineOutSource` `LineOutPolarity`
Category	/DigitalIOControl/LineOut

Values	Description
LineOut1	Set to control *LineOut1* (**default**).
LineOut2	Set to control *LineOut2*
LineOut3	Set to control *LineOut3*

LineOutSource

[LineOutSelector]

Signal source of the `LineOut` line specified by `LineOutSelector`.

For detailed information see the camera waveform diagrams provided in the Goldeye G/CL Technical Manual.

Display name	LineOutSource
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	*FrameTriggerReady*
Category	/DigitalIOControl/LineOut

Values	Description
GPO	General purpose output
AcquisitionTriggerReady	Active once the camera has been recognized by the host computer and is ready to start acquisition
FrameTriggerReady	Active when the camera is in a state that will accept the next frame trigger
Exposing	Active for the duration of sensor exposure (**default**)
FrameReadout	Active during frame readout, i.e. the transferring of image data from the CCD to camera memory
Imaging	Active when the camera is exposing or reading out frame data
Acquiring	Active when acquisition start has been initiated
LineIn1	Active when there is an external trigger at Line1
LineIn2	Active when there is an external trigger at Line2
Strobe1	The output signal is controlled according to Strobe1 settings
CC1	(Camera Link models only) Active when there is an external trigger at CC1.
CC2	(Camera Link models only) Active when there is an external trigger at CC2.
CC3	(Camera Link models only) Active when there is an external trigger at CC3.
CC4	(Camera Link models only) Active when there is an external trigger at CC4.

Strobe

Strobe is an internal signal generator for on-camera clocking functions. Valid when any of the `LineOutSource` is set to ***`Strobe1`***. Strobe allows to change the delay and duration of a source signal, which can be useful e. g. when trying to synchronize a camera exposure to an external signal.

Display name	Strobe
Origin of feature	Camera
Feature type	(Category)
Category	/DigitalIOControl

StrobeDelay

Delay from strobe trigger to strobe output.

Display name	StrobeDelay
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/DigitalIOControl/Strobe

Values	Description
`0`	Minimum (**default**)
Camera dependent	Maximum

StrobeDuration

Duration of strobe signal.

Display name	StrobeDuration
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Microseconds
Affected features	(None)
Category	/DigitalIOControl/Strobe

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

StrobeDurationMode

Mode of the strobe timing unit.

Display name	StrobeDurationMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DigitalIOControl/Strobe

Values	Description
Source	Strobe duration is the same as source duration (**default**)
Controlled	Strobe duration is set by `StrobeDuration`

StrobeSource

Associates the start of strobe signal with one of the signals defined as values in the following table.

For detailed information see the camera waveform diagrams provided in the Goldeye G/CL Technical Manual.

Display name	StrobeSource
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/DigitalIOControl/Strobe

Values	Description
AcquisitionTriggerReady	Active once the camera has been recognized by the host computer and is ready to start acquisition
FrameTriggerReady	Active when the camera is in a state that will accept the next frame trigger
FrameTrigger	Active when an image has been initiated to start. This is the logic trigger signal inside of the camera. It is initiated by an external trigger or software trigger (**default**)
Exposing	Active for the duration of sensor exposure
FrameReadout	Active for the duration of frame readout, i.e. the transferring of image data from the CCD to camera memory
Acquiring	Active during the acquisition stream
LineIn1	Active when there is an external trigger at line1
LineIn2	Active when there is an external trigger at line2
CC1	(Camera Link models only) Active when there is an external trigger on CC1
CC2	(Camera Link models only) Active when there is an external trigger on CC2
CC3	(Camera Link models only) Active when there is an external trigger on CC3
CC4	(Camera Link models only) Active when there is an external trigger on CC4.

EventControl

This category describes how to control the generation of Events to the host application. An Event is a message that is sent to the host application to notify it of the occurrence of an internal event.

Display name	EventControl
Origin of feature	Camera
Feature type	(Category)

EventData (subcategory)

This subcategory holds the frame ID and camera time stamp of all the events supported by the camera. All time stamps are given in nanoseconds since device start.

Display name	EventData
Origin of feature	Camera
Feature type	(Subcategory)
Category	/EventControl

EventAcquisitionEndFrameID

ID of last frame before acquisition end.

Display name	EventAcquisitionEndFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventAcquisitionEndTimestamp

Camera time stamp when acquisition end occurred.

Display name	EventAcquisitionEndTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventAcquisitionRecordTriggerFrameID

ID of frame when acquisition record trigger was activated.

Display name	EventAcquisitionRecordTriggerFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventAcquisitionRecordTriggerTimestamp

Camera time stamp when acquisition record trigger was activated.

Display name	EventAcquisitionRecordTriggerTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventAcquisitionStartFrameID

ID of first frame after acquisition start.

Display name	EventAcquisitionStartFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventAcquisitionStartTimestamp

Camera time stamp when acquisition start occurred.

Display name	EventAcquisitionStartTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventErrorFrameID

ID of frame when an error occurred.

Display name	EventErrorFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventErrorTimestamp

Camera time stamp when an error occurred.

Display name	EventErrorTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventExposureEndFrameID

Display name	EventExposureEndFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventExposureEndTimestamp

Display name	EventExposureEndTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventFrameTriggerFrameID

Display name	EventFrameTriggerFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventFrameTriggerTimestamp

Display name	EventFrameTriggerTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventFrameTriggerReadyFrameID

Display name	EventFrameTriggerReadyFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventFrameTriggerReadyTimestamp

Display name	EventFrameTriggerReadyTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventLine1FallingEdgeFrameID

Display name	EventLine1FallingEdgeFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventLine1FallingEdgeTimestamp

Display name	EventLine1FallingEdgeTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventLine1RisingEdgeFrameID

Display name	EventLine1RisingEdgeFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventLine1RisingEdgeTimestamp

Display name	EventLine1RisingEdgeTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventLine2FallingEdgeFrameID

Display name	EventLine2FallingEdgeFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventLine2FallingEdgeTimestamp

Display name	EventLine2FallingEdgeTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventLine2RisingEdgeFrameID

Display name	EventLine2RisingEdgeFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventLine2RisingEdgeTimestamp

Display name	EventLine2RisingEdgeTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventOverflowFrameID

Display name	EventOverflowFrameID
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventOverflowTimestamp

Display name	EventOverflowTimestamp
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventSensorTemperatureControlStateFrameID

Display name	EventSensorTemperatureControlStateFrameID
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventSensorTemperatureControlStateTimestamp

Display name	EventSensorTemperatureControlStateTimestamp
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventSensorTemperatureSetpointFrameID

Display name	EventSensorTemperatureControlStateFrameID
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/EventControl/EventData

EventSensorTemperatureSetpointTimestamp

Event is generated by a change in temperature setpoint.

Display name	EventSensorTemperatureControlStateTimestamp
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Nanoseconds since device start
Affected features	(None)
Category	/EventControl/EventData

EventID (subcategory)

Display name	EventID
Origin of feature	Camera
Feature type	(Subcategory)
Category	/EventControl

If you use the message channel for event notification, you are always subscribed to `EventOverflow` and `EventError` events.

There is no mechanism to detect the loss of events during transportation.

If misconfigured, cameras may produce lots of events—more than a computer can handle.

Event name	GigE Event ID	CL Event ID
`EventAcquisitionStart`	40000	0x8000 (32768)
`EventAcquisitionEnd`	40001	0x8001 (32769)
`EventFrameTrigger`	40002	(Not available)
`EventExposeEnd`	40003	(Not available)
`EventAcquisitionRecordTrigger`	40004	(Not available)
`EventLineIn1RisingEdge`	40010	0x800A (32778)
`EventLineIn1FallingEdge`	40011	0x800B (32779)
`EventLineIn2RisingEdge`	40012	0x800C (32780)
`EventLineIn2FallingEdge`	40013	0x800D (32781)
`EventFrameTriggerReady`	40016	(Not available)
`EventCC1RisingEdge`	(Not available)	0x8012 (32786)
`EventCC1FallingEdge`	(Not available)	0x8013 (32787)
`EventCC2RisingEdge`	(Not available)	0x8014 (32788)
`EventCC2FallingEdge`	(Not available)	0x8015 (32789)
`EventCC3RisingEdge`	(Not available)	0x8016 (32790)
`EventCC3FallingEdge`	(Not available)	0x8017 (32791)
`EventCC4RisingEdge`	(Not available)	0x8018 (32792)
`EventCC4FallingEdge`	(Not available)	0x8019 (32793)
`EventSensorTemperatureSetpoint`	40027	0x8020 (32800)
`EventSensorTemperatureControlState`	40028	0x8021 (32801)
`EventOverflow`	65534	0x8FFF (36863)
`EventError`	65535	0x0000 (0)

EventAcquisitionStart

Display name	EventAcquisitionStart
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventAcquisitionStartTimestamp` `EventAcquisitionStartFrameID`
Category	/EventControl/EventID

Values	Description
40,000	(GigE Vision models only) ID value of event.
0x8000 (32768)	(Camera Link models only) ID value of event.

EventAcquisitionEnd

Display name	EventAcquisitionEnd
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventAcquisitionEndTimestamp` `EventAcquisitionEndFrameID`
Category	/EventControl/EventID

Values	Description
40,001	(GigE Vision models only) ID value of event.
0x8001 (32769)	(Camera Link models only) ID value of event.

EventFrameTrigger

Display name	EventFrameTrigger
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/C
Affected features	`EventFrameTriggerTimestamp` `EventFrameTriggerFrameID`
Category	/EventControl/EventID

Values	Description
40,002	(GigE Vision models only) ID value of event.

EventExposureEnd

Display name	EventExposureEnd
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/C
Affected features	*EventExposureEndTimestamp* *EventExposureEndFrameID*
Category	/EventControl/EventID

Values	Description
40,003	(GigE Vision models only) ID value of event.

EventAcquisitionRecordTrigger

Display name	EventAcquisitionRecordTrigger
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/C
Affected features	*EventAcquisitionRecordTriggerTimestamp* *EventAcquisitionRecordTriggerFrameID*
Category	/EventControl/EventID

Values	Description
40,004	(GigE Vision models only) ID value of event.

EventCC1RisingEdge

Display name	EventCC1RisingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8012 (32786)	(Camera Link models only) ID value of event.

EventCC1FallingEdge

Display name	EventCC1FallingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8013 (32787)	(Camera Link models only) ID value of event.

EventCC2RisingEdge

Display name	EventCC2RisingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8014 (32788)	(Camera Link models only) ID value of event.

EventCC2FallingEdge

Display name	EventCC2FallingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8015 (32789)	(Camera Link models only) ID value of event.

EventCC3RisingEdge

Display name	EventCC3RisingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8016 (32790)	(Camera Link models only) ID value of event.

EventCC3FallingEdge

Display name	EventCC3FallingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8017 (32791)	(Camera Link models only) ID value of event.

EventCC4RisingEdge

Display name	EventCC4RisingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8019 (32792)	(Camera Link models only) ID value of event.

EventCC4FallingEdge

Display name	EventCC4FallingEdge
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
0x8018 (32793)	(Camera Link models only) ID value of event.

EventLine1RisingEdge

Display name	EventLine1RisingEdge
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventLine1RisingEdgeTimestamp` `EventLine1RisingEdgeFrameID`
Category	/EventControl/EventID

Values	Description
40,010	(GigE Vision models only) ID value of event.
0x800A (32778)	(Camera Link models only) ID value of event.

EventLine1FallingEdge

Display name	EventLine1FallingEdge
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventLine1FallingEdgeTimestamp` `EventLine1FallingEdgeFrameID`
Category	/EventControl/EventID

Values	Description
40,011	(GigE Vision models only) ID value of event.
0x800B (32779)	(Camera Link models only) ID value of event.

EventLine2RisingEdge

Display name	EventLine2RisingEdge
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventLine2RisingEdgeTimestamp`, `EventLine2RisingEdgeFrameID`
Category	/EventControl/EventID

Values	Description
40,012	(GigE Vision models only) ID value of event.
0x800C (32780)	(Camera Link models only) ID value of event.

EventLine2FallingEdge

Display name	EventLine2FallingEdge
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Affected features	`EventLine2FallingEdgeTimestamp` `EventLine2FallingEdgeFrameID`
Category	/EventControl/EventID

Values	Description
40,013	(GigE Vision models only) ID value of event.
0x800D (32781)	(Camera Link models only) ID value of event.

EventFrameTriggerReady

Display name	EventFrameTriggerReady
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/C
Affected features	`EventFrameTriggerReadyTimestamp` `EventFrameTriggerReadyFrameID`
Category	/EventControl/EventID

Values	Description
40,016	(GigE Vision models only) ID value of event.

EventSensorTemperatureSetpoint

Display name	EventSensorTemperatureControlState
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
40,027	(GigE Vision models only) ID value of event.
0x8020 (32800)	(Camera Link models only) ID value of event.

EventSensorTemperatureControlState

Display name	EventSensorTemperatureControlState
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/EventControl/EventID

Values	Description
40,028	(GigE Vision models only) ID value of event.
0x8021 (32801)	(Camera Link models only) ID value of event.

EventOverflow

The overflow event occurs if one or more notification events are lost on the camera. If you use the message channel for event notification, you are always subscribed to this event.

Display name	EventOverflow
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventOverflowTimestamp` `EventOverflowFrameID`
Category	/EventControl/EventID

Values	Description
65,534	(GigE Vision models only) ID value of event.
0x8FFF (36863)	(Camera Link models only) ID value of event.

EventError

The error event occurs if there is a problem on the camera; this event should be reported to technical support. If you use the message channel for event notification, you are always subscribed to this event.

Display name	EventError
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/C
Affected features	`EventErrorTimestamp` `EventErrorFrameID`
Category	/EventControl/EventID

Values	Description
65,535	(GigE Vision models only) ID value of event.
0x0000 (0)	(Camera Link models only) ID value of event.

EventControl (continued)

The feature descriptions for the `EventID` subcategory have ended on the previous page. The following features continue the `EventControl` category, without a subcategory.

EventNotification

[EventSelector]

Control event notification on the GigE Vision message channel.

Display name	EventNotification
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Enumeration
Access	R/W
Affected features	`EventsEnable1`
Category	/EventControl

Values	Description
Off	Disables event notification (**default**).
On	Activates event notification.

EventSelector

Selects a specific event to be enabled or disabled using `EventNotification`.

Display name	EventSelector
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Enumeration
Access	R/W
Affected features	`EventNotification` `EventsEnable1`
Category	/EventControl

Values	Description
AcquisitionStart	GigE Vision and Camera Link (**default**)
AcquisitionEnd	GigE Vision and Camera Link
FrameTrigger	GigE Vision models only
ExposureEnd	GigE Vision models only
AcquisitionRecordTrigger	GigE Vision models only
Line1RisingEdge	GigE Vision and Camera Link
Line1FallingEdge	GigE Vision and Camera Link
Line2RisingEdge	GigE Vision and Camera Link
Line2FallingEdge	GigE Vision and Camera Link
EventCC1RisingEdge	Camera Link models only
EventCC1FallingEdge	Camera Link models only
EventCC2RisingEdge	Camera Link models only
EventCC2FallingEdge	Camera Link models only
EventCC3RisingEdge	Camera Link models only
EventCC3FallingEdge	Camera Link models only
EventCC4RisingEdge	Camera Link models only
EventCC4FallingEdge	Camera Link models only
EventSensorTemperatureSetpoint	Camera Link models only
EventSensorTemperatureControlState	Camera Link models only
FrameTriggerReady	GigE Vision models only

EventsEnable1

[EventSelector]

Bit field of all events.

This is an alternative of setting each event individually using the `EventNotification` and `EventSelector` method.

Display name	EventsEnable1
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R/W
Affected features	`EventNotification`
Category	/EventControl

GigE Event ID	Bit Pos.	Description
40000	0	EventAcquisitionStart
40001	1	EventAcquisitionStop
40002	2	EventFrameTrigger
40003	3	EventExposeEnd
40004	4	EventRecorderTrigger
40010	10	EventLineIn1RisingEdge
40011	11	EventLineIn1FallingEdge
40012	12	EventLineIn2RisingEdge
40013	13	EventLineIn2FallingEdge
40018	18	EventFrameTrigReady
40027	27	EventSensorTemperatureSetpoint
40028	28	EventSensorTemperatureControlState

CL Event ID	Bit Pos.	Description
0x8000 (32768)	0	EventAcquisitionStart
0x8001 (32769)	1	EventAcquisitionStop
0x800A (32778)	10	EventLineIn1RisingEdge
0x800B (32779)	11	EventLineIn1FallingEdge
0x800C (32780)	12	EventLineIn2RisingEdge
0x800D (32781)	13	EventLineIn2FallingEdge
0x8012 (32786)	18	EventCC1RisingEdge
0x8013 (32787)	19	EventCC1FallingEdge

Table 3: EventsEnable1 CL event descriptions (sheet 1 of 2)

CL Event ID	Bit Pos.	Description
0x8014 (32788)	20	EventCC2RisingEdge
0x8015 (32789)	21	EventCC2FallingEdge
0x8016 (32790)	22	EventCC3RisingEdge
0x8017 (32791)	23	EventCC3FallingEdge
0x8018 (32792)	24	EventCC4RisingEdge
0x8019 (32793)	25	EventCC4FallingEdge
0x8027 (32807)	27	EventSensorTemperatureSetpoint
0x8028 (32808)	28	EventSensorTemperatureControlState

Table 3: EventsEnable1 CL event descriptions (sheet 2 of 2)

FileAccessControl

Contains the features related to generic file access of a device.

Display name	FileAccessControl
Origin of feature	Camera
Feature type	(Category)

FileAccessBuffer

Defines the intermediate access buffer that allows the exchange of data between the camera file storage and the application.

Display name	FileAccessBuffer
Origin of feature	Camera
Feature type	Register
Access	R/W
Affected features	(None)
Category	/FileAccessControl

FileAccessLength

Controls the length of mapping between the camera file storage and the `FileAccessBuffer`.

Display name	FileAccessLength
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Bytes
Affected features	(None)
Category	/FileAccessControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

FileAccessOffset

Controls the offset of mapping between the camera file storage and the `FileAccessBuffer`.

Display name	FileAccessOffset
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Bytes
Affected features	(None)
Category	/FileAccessControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

FileAttribute

[FileSelector][FileOperationSelector]

Attribute of the currently selected file.

Display name	FileAttribute
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/FileAccessControl

Bits	Description
Bit 0 to 1	These two bits are used to encode the privilege level for a file. It defines the owner of the file: *0* = [**Default**] User owns the file. User can overwrite and delete the file *1* = For factory personnel use only *2, 3* = Reserved
Bit 2 to 31	Reserved, always *0*

FileAttributeBuffer

[FileSelector][FileOperationSelector]

Contains the attribute that will be used for newly created files or if the attribute of an existing file is changed.

Display name	FileAttributeBuffer
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Bits	Description
Bit 0 to 1	These two bits are used to encode the privilege level for a file. It defines the owner of the file: *0* = [**Default**] User owns the file. User can overwrite and delete the file *1* = For factory personnel use only *2*, *3* = Reserved
Bit 2 to 31	Reserved, always *0*

FileDescription

[FileSelector][FileOperationSelector]

Description string for currently selected file. A maximum of 32 characters is allowed, including the trailing null character.

Display name	FileDescription
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/FileAccessControl

FileDescriptionBuffer

[FileSelector][FileOperationSelector]

Contains the description that will be used for newly created files or if the description of an existing file is changed. A maximum of 32 characters is allowed, including the trailing null character.

Display name	FileDescriptionBuffer
Origin of feature	Camera
Feature type	String
Access	R/W
Affected features	(None)
Category	/FileAccessControl

FileOpenAttribute

[FileSelector][FileOperationSelector]

Selects the attributes for a file that is opened in the device.

Display name	FileOpenAttribute
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Values	Description
Overwrite	If file is open in write mode, content of the file is overwritten (**default**).
Append	If file is open in write mode, new data is appended at the end of the existing content.

FileOpenMode

[FileSelector][FileOperationSelector]

Selects the access mode in which a file is opened in the device.

Display name	FileOpenMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Values	Description
Read	Selects read-only open mode (**default**)
Write	Selects write-only open mode

FileOperationExecute

[FileSelector][FileOperationSelector]

Executes the operation selected by `FileOperationSelector` on the selected file.

Display name	FileOperationExecute
Origin of feature	Camera
Feature type	Command
Affected features	(None)
Category	/FileAccessControl

FileOperationResult

[FileSelector][FileOperationSelector]

Represents the result of the file operation. For read or write operations, the number of successfully read or written bytes is returned.

Display name	FileOperationResult
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Bytes
Affected features	(None)
Category	/FileAccessControl

FileOperationSelector

[FileSelector]

Selects the target operation for the selected file in the device. This operation is executed when the `FileOperationExecute` feature is called.

Display name	FileOperationSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Values	Description
Open	Opens the file selected by `FileSelector` in the device with an access mode selected in `FileOpenMode` (**default**).
Close	Closes the file selected by `FileSelector` in the device.
Read	Reads `FileAccessLength` bytes from the file selected by `FileSelector`. The file must have been opened for reading before this operation can be executed. The data is read from the file position defined by `FileAccessOffset` and it is stored in the `FileAccessBuffer`.
Write	Writes *`FileAccessLength`* bytes from the `FileAccessBuffer` to the file selected by `FileSelector`. The file must have been opened for writing before this operation can be executed. The data is written to the file position defined by `FileAccessOffset`.
Delete	Deletes the file selected by `FileSelector` in the device. Note: Deleting a device file does not remove the associated `FileSelector` entry to allow future operation on this file.
WriteType	Changes the type of the file selected by `FileSelector` to the type defined by `FileTypeBuffer`.
WriteAttribute	Changes the attribute of the file selected by `FileSelector` to the attribute defined by `FileAttributeBuffer`.
WriteDescription	Changes the description of the file selected by `FileSelector` to the type defined by `FileDescriptionBuffer`.

FileOperationStatus

[FileSelector][FileOperationSelector]

Returns the status of file operation execution.

Display name	FileOperationStatus
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/FileAccessControl

Values	Description
Success	File operation successful (**default**)
Failure	File operation failed

FileSelector

Selects the target file in the device. The entries of this enumeration define the names of all files in the device that can be accessed via the file access. For example:

- `UserData`: first user data set.
- `UserData2`: second user data set.

Display name	FileSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Values	Description
Firmware	Installed firmware (**default**).
UserData to *UserData4*	Four user data sets.
DPC_000	One data set for defect pixel correction.
NUC_000 to *NUC_055*	56 data sets for non-uniformity correction.
NUC_User_000 to *NUC_User_007*	Eight data sets for non-uniformity correction, for upload by the user.
LUT_000 to *LUT_003*	Four look-up table data sets.
LUT_User_000 to *LUT_User_003*	Four look-up table data sets, for upload by the user.

FileSize

[FileSelector]

Represents the size of the selected file in bytes.

Display name	FileSize
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/FileAccessControl

FileStatus

[FileSelector]

Represents the status of the file.

Display name	FileStatus
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/FileAccessControl

Values	Description
Closed	File is currently closed (**default**).
Open	File is currently open.

FileType

[FileSelector]

Represents the type of the file currently selected by the user.

Display name	FileType
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/FileAccessControl

FileTypeBuffer

[FileSelector]

Contains the type that will be used for newly created files or if the type of an existing file is to be changed.

Display name	FileTypeBuffer
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/FileAccessControl

Values	Description
0x1000	Non-uniformity correction data
0x2000	Defect pixel correction data

GigE

This category describes the GigE Vision specific transport layer features.

Display name	GigE
Origin of feature	Camera
Feature type	(Category)

Configuration

Category for GigE configuration.

Display name	Configuration
Origin of feature	Camera
Feature type	(Category)
Category	/GigE

GevIPConfigurationMode

Current IP configuration mode.

Display name	IPConfigurationMode
Origin of feature	Transport layer
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/GigE/Configuration

Values	Description
LLA	Link Local Address IP configuration mode (**default**).
DHCP	DHCP IP configuration mode.
Persistent	Persistent IP configuration mode.

Current

Category for current GigE settings.

Display name	Current
Origin of feature	Camera
Feature type	(Category)
Category	/GigE

GevCurrentDefaultGateway

IP address of the default gateway of the device.

Display name	CurrentDefaultGateway
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/GigE/Current

GevCurrentIPAddress

Current IP address of the device.

Display name	CurrentIPAddress
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/GigE/Current

GevCurrentSubnetMask

Current subnet mask of the device.

Display name	CurrentSubnetMask
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/GigE/Current

GVCP

Allied Vision GigE SWIR cameras have a sophisticated real time resend mechanism that ensures a high degree of data integrity.

The category GVCP (GigE Vision Control Protocol) holds the features related to that.

Display name	GVCP
Origin of feature	Camera
Feature type	(Category)
Category	/GigE

GVCPCmdRetries

Controls the maximum number of resend requests that the host will attempt when trying to recover a lost packet.

Display name	CommandRetries
Origin of feature	Transport layer
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/GigE/GVCP

Values	Description
1	Minimum
5	**Default**
9	Maximum

GVCPCmdTimeout

Timeout waiting for an answer from the device.

Display name	CommandTimeout
Origin of feature	Transport layer
Feature type	Integer
Access	R/W
Unit	Milliseconds
Affected features	(None)
Category	/GigE/GVCP

Values	Description
100	Minimum
250	**Default**
1,000	Maximum

GevHeartbeatInterval

The driver sends heartbeat packets to the camera every `GevHeartbeatInterval` milliseconds. If the camera fails to respond to the heartbeat request, a retry is sent `GVCPCmdTimeout` milliseconds later. After `GVCPCmdRetries` retries with no response, a camera unplugged event is returned by the driver.

This parameter can be increased significantly to bypass problems when debugging applications.

Display name	HeartbeatInterval
Origin of feature	Transport layer
Feature type	Integer
Access	R/W
Unit	Milliseconds
Affected features	(None)
Vimba	V1.3 or later
Category	/GigE/GVCP

Values	Description
200	Minimum
1,450	Maximum (**default**)

GevSCPSPacketSize

This parameter determines the Ethernet packet size. Generally, this number should be set to as large as the network card (or other involved active networking components) will allow. If this number is reduced, then CPU loading will increase. These large packet sizes (>1500) are called jumbo packets or jumbo frames in Ethernet terminology.

If your Gigabit Ethernet network card does not support jumbo packets or frames of at least 8228 bytes (the camera default on power up), then you will need to reduce `GevSCPSPacketSize` parameter of the camera to match the maximum jumbo packet size supported by your Gigabit Ethernet interface.

A `GevSCPSPacketSize` of 1500 is a safe setting which all GigE Ethernet network cards support.

If you are seeing all black images, or all frames reported as *`StatFrameDropped`* and zero images reported as *`StatFrameDelivered`*, you will likely need to decrease this parameter.

Display name	GevSCPSPacketSize
Origin of feature	Transport layer
Feature type	Integer
Access	R/W
Unit	Bytes
Affected features	(None)
Category	/GigE/GVCP

Values	Description
`500`	Minimum
`1,500`	**Default**
Camera dependent	Maximum

Persistent

This category holds the features that have persistent (non-changing) values.

Display name	Persistent
Origin of feature	Camera
Feature type	(Category)
Category	/GigE

GevPersistentDefaultGateway

Persistent default gateway of the device.

Display name	PersistentDefaultGateway
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/GigE/Persistent

GevPersistentIPAddress

Persistent IP address of the device.

Display name	PersistentIPAddress
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/GigE/Persistent

GevPersistentSubnetMask

Persistent subnet mask of the device.

Display name	PersistentSubnetMask
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/GigE/Persistent

ImageCorrectionControl

Image corrections for SWIR sensors.

The corrections applied to the image are of special relevance within the Goldeye camera. They are applied by the following modules.

- Background correction (BC)
- Non-uniformity correction (NUC)
- Defect pixel correction (DPC)

The corrections need special correction data that must be provided prior to operating the image processing chain.

Display name	**ImageCorrectionControl**
Origin of feature	**Camera**
Feature type	**(Category)**

BackgroundCorrection (subcategory)

This subcategory handles all features necessary to apply the background correction (BC). Refer to the Goldeye G/CL Technical Manual for a description of how the background correction is applied.

Display name	BackgroundCorrection
Origin of feature	Camera
Feature type	(Subcategory)
Category	/ImageCorrectionControl

BCDatasetMeanValue

Provides mean value of the correction image.

Copy the value to `BCDatasetOffsetValue` to get the same brightness level behind the active background correction as the uncorrected image has.

Display name	BCDatasetMeanValue
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

BCDatasetOffsetValue

Specifies the output offset of the corrected image.

The scale is always based on the maximum pixel depth the camera supports, independent of the active output pixel format.

Display name	BCDatasetOffsetValue
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
-32,768	Minimum
0	**Default**
32,768	Maximum

BCDatasetROIHeight

Provides the height of the integrated correction image. The background correction stays active as long as the current active image region fully fits into the ROI of the correction image.

See `BCState` feature for current state of the background correction processing.

Display name	BCDatasetROIHeight
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
(Height)	Minimum
(Sensor height)	Maximum (**default**)

BCDatasetROIOffsetX

Provides the horizontal offset of the integrated correction image. The background correction stays active as long as the current active image region fully fits into the ROI of the correction image.

See `BCState` feature for current state of the background correction processing.

Display name	BCDatasetROIOffsetX
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
0	Minimum (**default**, same as `OffsetX` feature)
Camera dependent	Maximum (Same as `OffsetX` feature)

BCDatasetROIOffsetY

Provides the vertical offset of the integrated correction image. The background correction stays active as long as the current active image region fully fits into the ROI of the correction image.

See `BCState` feature for current state of the background correction processing.

Display name	BCDatasetROIOffsetY
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
0	Minimum (**default**, same as `OffsetY` feature)
Camera dependent	Maximum (Same as `OffsetY` feature)

BCDatasetROIWidth

Provides the width of the integrated correction image. The background correction stays active as long as the current active image region fully fits into the ROI of the correction image.

See `BCState` feature for current state of the background correction processing.

Display name	BCDatasetROIWidth
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
Camera dependent	Minimum (Same as `Width` feature)
(Sensor width)	**Default**
Camera dependent	Maximum (Same as `Width` feature)

BCIntegrationAbort

Aborts a running integration as soon as possible. The correction buffer will be invalid if lesser number of frames have been integrated than requested.

Display name	BCIntegrationAbort
Origin of feature	Camera
Feature type	Command
Access	(R)/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

BCIntegrationFrameCount

Number of frames to integrate after `BCIntegrationStart` command. Integrating more images improves the correction quality because influence of dynamic noise on the correction image is reduced.
`BCIntegrationFrameCount` is always rounded off to the next power of two.

Display name	BCIntegrationFrameCount
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
1	Correction image consists of one frame only.
2	Two frames will be integrated for correction image.
4	Four frames will be integrated for correction image (**default**).

BCIntegrationMode

Controls how a background correction image will be acquired upon `BCIntegrationStart` command.
Use `BCIntegrationStart` to start the *`FrameBuffer`* writing, set `BCIntegrationMode` = *`Integrate`* to stop it.

Display name	BCIntegrationMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
`Integrate`	After submission of `BCIntegrationStart` a correction image will be acquired that is the mean of `BCIntegrationFrameCount` images.
`FrameBuffer`	Store every frame to the correction memory and use the previously stored image for correction. If `BCMode` = *`On`*, this can be used to get a dynamic frame-to-frame difference of the live image.

Note: Default values are model dependent.

BCIntegrationStart

Starts the integration of `BCIntegrationFrameCount` frames, depending on `BCIntegrationMode`. This command does not control the triggering of images for the integration, it only enables the integration process.

Use `BCIntegrationStart` to start the *`FrameBuffer`* writing, set `BCIntegrationMode` = *`Integrate`* to stop it.

Background correction will wait after `BCIntegrationStart`, until `BCIntegrationFrameCount` frames have been produced by the camera. Frame triggering is not in the background correction domain. This is controlled by features such as `ExposureTime`, `AcquisitionStart`, `AcquisitionStop`, `TriggerSource`, `TriggerSelector`, or `AcquisitionFrameRate`.

If the camera does not output images for some reason, background correction integration will stall until `AcquisitionStart` is executed and frame triggering is allowed by the trigger setup.

For optimal correction results:

1. Configure the settings you intend to use for your application.
2. Integrate a fresh background correction image without light (dark image) using these settings.
3. Finally, apply the background correction.

Display name	BCIntegrationStart
Origin of feature	Camera
Feature type	Command
Access	(R)/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

BCMode

Controls the operating mode of the background correction. Different modes may be available, depending on the previously integrated corrected data.

Display name	BCMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
Off	Background correction is off (**default**).
On	If the current correction image is valid (see `BCState`), it is subtracted from the live image and the `BCDatasetOffsetValue` is added.
OffsetOnly	`BCDatasetOffsetValue` is added to the live image.
ReferenceImage	If the current correction image id valid (see `BCState`), it is output instead of the live image.

BCState

Shows the current state of the background correction processing. If the state is ***Ok***, then the BC is operating normally as configured with BCMode, otherwise the ROI settings might be out of range, a new integration might be needed or is still in progress.

Display name	BCState
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/BackgroundCorrection

Values	Description
Ok	Background correction is operating normally as configured with `BCMode`.
DatasetInvalid	A new integration might be needed or is still in progress.
ROIOutOfBounds	ROI settings might be out of the valid range of the integrated correction image.

DefectPixelCorrection (subcategory)

This subcategory handles all features necessary to apply the defect pixel correction (DPC). Refer to the Goldeye G/CL Technical Manual for a description of how the defect pixel correction is applied.

Notes

- Decimation and features to control NUC or DPC are mutually exclusive. Using decimation disables NUC and DPC, and vice versa.
- Multiple regions and features to control NUC or DPC are mutually exclusive. Using multiple regions disables NUC and DPC, and vice versa.

Display name	AutoModeParameters
Origin of feature	Camera
Feature type	(Subcategory)
Category	/ImageCorrectionControl

DPCDatasetActivate

[DPCDatasetSelector]

Activates the data set that is currently indexed by `DPCDatasetSelector`.

Display name	DPCDatasetActivate
Origin of feature	Camera
Feature type	Command
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

DPCDatasetActive

[DPCDatasetSelector]

The index of the active data set, starting at `0`. The maximum possible value of `DPCDatasetActive` depends on the number of valid data sets in the camera. The mapping of an index value to a specific correction data file may vary from camera to camera or after correction data modifications.

Use the `DPCDatasetSelector` and corresponding features to retrieve more information about the data sets.

Display name	DPCDatasetActive
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

Values	Description
`0`	Minimum
Camera dependent	Maximum

DPCDatasetActiveDescription

[DPCDatasetSelector]

Gives a short descriptive label to the data set that is currently indexed by `DPCDatasetActive`.

Display name	DPCDatasetActiveDescription
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

DPCDatasetDescription

[DPCDatasetSelector]

Gives a short descriptive label to the data set that is currently indexed by `DPCDatasetSelector`.

Display name	DPCDatasetDescription
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

DPCDatasetSelector

Selects a data set for access. The maximum possible value of `DPCDatasetSelector` depends on the number of valid data sets in the camera. The mapping of an index value to a specific correction data file may vary from camera to camera or after correction data modifications.

The selector only operates as index to data set information and does not change any camera setting. Use `DPCDatasetActivate` to activate the currently indexed data set.

Display name	DPCDatasetSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

Values	**Description**
0	Minimum
Camera dependent	Maximum

DPCMode

Controls the operation mode of the defect pixel correction.

Note: `DPCMode` is **available only for** all Goldeye G/CL-008 and G/CL-034 models.

Display name	DPCMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/DefectPixelCorrection

Values	Description
On	Enables defect pixel correction (**default**).
Off	Disables defect pixel correction.
ShowDefectsOnly	Defect pixels are displayed on a black background image.
ShowDefectsAndImage	Defect pixels are displayed as overlay on the stream.

NonUniformityCorrection (subcategory)

Every pixel of an InGaAs sensor possesses its individual amount of dark signal and an individual sensitivity for light. Thus, while exposing, each sensor creates a specific, non-uniform underlying pattern. This pattern can be compensated with help of the non-uniformity correction.

This subcategory contains features that allow to control the non-uniformity correction. Refer to the Goldeye G/CL Technical Manual for a description of how the non-uniformity correction is applied.

Notes

- Decimation and features to control NUC or DPC are mutually exclusive. Using decimation disables NUC and DPC, and vice versa.
- Multiple regions and features to control NUC or DPC are mutually exclusive. Using multiple regions disables NUC and DPC, and vice versa.

Display name	NonUniformityCorrection
Origin of feature	Camera
Feature type	(Subcategory)
Category	/ImageCorrectionControl

NUCDatasetActivate

[NUCDatasetSelector]

Activates the data set that is currently indexed by the `NUCDatasetSelector`.

Display name	NUCDatasetActivate
Origin of feature	Camera
Feature type	Command
Access	(R)/W
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetActive

[NUCDatasetSelector]

The index of the active data set, starting at *0*. The maximum possible value depends on the number of valid data sets in the camera. The mapping of an index value to a specific correction data file may vary from camera to camera or after correction data modifications. Use the `NUCDatasetSelector` and corresponding features to retrieve more information about the data sets.

If `NUCDatasetAuto` is set to *Off*, the data set currently applied can be changed by writing a data set index to `NUCDatasetSelector` and executing the `NUCDatasetActivate` command.

If `NUCDatasetAuto` is set to *Once* or *Continuous*, the index may change as a result of the automatic data set selection.

Display name	NUCDatasetActive
Origin of feature	Camera
Feature type	Integer
Access	R/(W)
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
0	Minimum
(Number of valid data sets)	Maximum

NUCDatasetActiveDescription

[NUCDatasetSelector]

Gives a short descriptive label to the data set that is currently indexed by `NUCDatasetActive`. For example: Gain 0, 15.000 °C, 1000 µs.

This text is intended for informational purposes in the user interface display only!

For the actual values refer to `NUCDatasetActiveExposureTime`, `NUCDatasetActiveGain`, and `NUCDatasetActiveTemperature`

Display name	NUCDatasetActiveDescription
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetActiveExposureTime

[NUCDatasetSelector]

Shows exposure time at acquisition of the data set that is currently indexed by `NUCDatasetActive`. The data set should be selected so that the actual exposure time setting corresponds to the reference value.

The number of distinct reference values is limited by available correction data, depending on the camera model.

Display name	NUCDatasetActiveExposureTime
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Microseconds
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetActiveGain

[NUCDatasetSelector]

Sensor gain setting at acquisition of the data set that is currently indexed by `NUCDatasetActive`. The data set should be selected so that the actual sensor gain setting corresponds to the reference value.

Depending on the camera model, different values may occur.

The number of distinct reference values is limited by available correction data, depending on the camera model.

Display name	NUCDatasetActiveGain
Origin of feature	Camera
Feature type	Float
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
0	SensorGain = Gain0
1	SensorGain = Gain1
2	SensorGain = Gain2

NUCDatasetActiveTemperature

[NUCDatasetSelector]

Shows sensor temperature, at acquisition of the data set that is currently indexed by `NUCDatasetActive`. The data set should be selected so that the actual sensor temperature is close to the reference temperature.

The number of distinct reference values is limited by available correction data, depending on the camera model.

Display name	NUCDatasetActiveTemperature
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Degree Celsius (°C)
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
-100	Minimum
Camera dependent	Maximum

NUCDatasetAuto

Controls the automatic data set selection of the non-uniformity correction.

Automatic data set selection does not work if the exposure time is controlled by an external signal applied to a camera input.

Display name	NUCDatasetAuto
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
Off	The automatic mode is off (**default**).
Once	Activates the selection only for the next image output, then falls back to *Off*.
Continuous	The camera will select the best correction data set for every frame, according to current analog gain setting, sensor temperature and exposure time. Note in *Continuous* mode the data set may toggle too frequently. If this happens, try executing the *Once* setting occasionally. This toggle effect can be caused by external trigger signal, or an inappropriate temperature setpoint of the sensor.

NUCDatasetDescription

[NUCDatasetNodeSelector]

Gives a short descriptive label to the data set that is currently indexed by the `NUCDatasetSelector`.

Display name	NUCDatasetDescription
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetExposureTime

[NUCDatasetNodeSelector]

Shows the exposure time at acquisition of the data set indexed by `NUCDatasetSelector`. The data set should be selected so that the actual exposure time setting corresponds to the reference value. Depending on camera model different values may occur.

Display name	NUCDatasetExposureTime
Origin of feature	Camera
Feature type	Float
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetGain

[NUCDatasetNodeSelector]

`SensorGain` setting at acquisition of the data set indexed by `NUCDatasetSelector`. The data set should be selected so that the actual sensor gain setting corresponds to the reference value.

The number of distinct reference values is limited by available correction data, depending on the camera model.

Display name	NUCDatasetGain
Origin of feature	Camera
Feature type	Float
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
0	`SensorGain` = *`Gain0`* (**default**)
1	`SensorGain` = *`Gain1`*
2	`SensorGain` = *`Gain2`*

NUCDatasetNodeSelector

Selects a data point of a data set for access to its properties, starting at *0*. The maximum possible value depends on the number of valid data points in the data set.

The selector only operates as index to node information in the data set indexed by `NUCDatasetSelector`. It does not change any camera setting.

Display name	NUCDatasetNodeSelector
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
0	Minimum
(Number of valid data points)	Maximum

NUCDatasetNodeValue

[NUCDatasetNodeSelecto]

The set value of the selected data point that is currently indexed by the `NUCDatasetSelector` and the `NUCDatasetNodeSelector`.

Setpoint defines a mean value which the corrected image will have if the input image has a mean value of the corresponding correction data image.

Display name	NUCDatasetNodeValue
Origin of feature	Camera
Feature type	Float
Access	R
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCDatasetSelector

Selects a data set for access to its properties and activation. The maximum possible value depends on the number of valid data sets in the camera.

The selector only operates as index to data set information and does not change any camera setting. Use `NUCDatasetActivate` to activate the currently indexed data set.

The mapping of an index value to a specific correction data file may vary from camera to camera or after correction data modifications.

Display name	NUCDatasetSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
0	Minimum
(Number of valid data sets)	Maximum

NUCDatasetTemperature

[NUCDatasetSelector]

Sensor temperature at acquisition of the data set indexed by `NUCDatasetSelector`. The data set should be selected so that the actual sensor temperature is close to the reference temperature.

The number of distinct reference values is limited by available correction data, depending on the camera model.

Display name	NUCDatasetTemperature
Origin of feature	Camera
Feature type	Float
Access	R
Unit	Degree Celsius (°C)
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

NUCMode

Controls the operating mode of the non-uniformity correction. Depending on the factory-provided correction data, different modes may be available.

Display name	NUCMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageCorrectionControl/NonUniformityCorrection

Values	Description
Off	Non-uniformity correction is off
OnePoint	Only one reference point is used for correction
TwoPoint	Two reference points are used for correction (**default**)
ThreePoint	Three reference points are used for correction

ImageFormatControl

This category describes how to influence and determine the image size and resolution. It assumes that the device generates a single rectangular image and allows for only one ROI (ROI). The necessary additional information on these properties is provided as well.

Binning is the summing of charge or gray value of adjacent pixels on the sensor. This generates a lower resolution image, but also causes an increase of the camera sensitivity, which will grow proportionally to the number of binned pixels.

Display name	ImageFormatControl
Origin of feature	Camera
Feature type	(Category)

BinningHorizontal

The horizontal binning factor.

Changing this value may affect the effective ROI size and position.
Horizontal and vertical binning can be adjusted separately.

Note: `BinningHorizontal` and `DecimationHorizontal` are mutually exclusive:

- If you enable `BinningHorizontal`, `DecimationHorizontal` is disabled.
- After enabling `BinningHorizontal`, you must not change `Width` or `OffsetX`.

See Image data flow and features order on page 19.

Display name	BinningHorizontal
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	`PayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Width`, `BCState`, `OffsetX`, `Height`, `OffsetY`
Category	/ImageFormatControl

Values	Description
1	No horizontal binning (**default**).
2	Horizontal binning of two pixels.
4	Horizontal binning of four pixels.
8	Horizontal binning of eight pixels.

BinningHorizontalMode

Determines whether the result of binned pixels is summed up.

Changing `BinningHorizontalMode` also changes `BinningVerticalMode`.

Display name	BinningHorizontalMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageFormatControl

Values	Description
Average	Binning is accomplished by averaging the charge or gray value of adjacent pixels on the sensor. This increases SNR by SQRT (number of binned pixels).
Sum	Binning is accomplished by summing the charge, meaning the gray value, of adjacent pixels on the sensor (**default**).

BinningVertical

The vertical binning factor.

Changing this value may affect the effective vertical ROI size and position.
The values for horizontal and vertical binning can be adjusted separately.

Note: `BinningVertival` and `DecimationVertical` are mutually exclusive:

- If you enable `BinningVertical`, `DecimationVertical` is disabled.
- After enabling `BinningVertical`, you must not change `Hight` or `OffsetY`.

See Image data flow and features order on page 19.

Display name	BinningVertical
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	`PayloadSize`, `HeightMax`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Height`, `BCState`, `OffsetY`
Category	/ImageFormatControl

Values	Description
1	No vertical binning (**default**)
2	Vertical binning of two pixels
4	Vertical binning of four pixels
8	Vertical binning of eight pixels

BinningVerticalMode

Determines whether the result of binned pixels is summed up.

Changing `BinningVerticalMode` also changes `BinningHorizontalMode`.

Display name	BinningVerticalMode
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageFormatControl

Values	Description
Average	Binning is accomplished by averaging the charge or gray value of adjacent pixels on the sensor. This increases SNR by SQRT (number of binned pixels).
Sum	Binning is accomplished by summing the charge, meaning the gray value, of adjacent pixels on sensor (**default**).

DecimationHorizontal

Decimation (or sub-sampling) is the process of skipping neighboring pixels during sensor readout. Decimation is used primarily to reduce the number of pixels and thus the amount of data while retaining the original image area angle and image brightness.

`DecimationHorizontal` controls the horizontal sub-sampling of the image.

Note: `DecimationHorizontal` and `BinningHorizontal` are mutually exclusive:

- If you enable `DecimationHorizontal`, `BinningHorizontal` is disabled.
- After enabling `DecimationHorizontal`, you must not change `Width` or `OffsetX`.
- Decimation and features to control NUC or DPC are mutually exclusive. Using decimation disables NUC and DPC, and vice versa.

See Image data flow and features order on page 19.

Display name	DecimationHorizontal
Origin of feature	Camera
Availability	G/CL-030 TEC1 and G/CL-130 TEC1
Feature type	Integer
Access	R/W
Affected features	`PayloadSize, WidthMax, ImageSize, AcquisitionFrameRateLimit, AcquisitionFrameRate, ExposureTime, StreamHoldCapacity, NonImagePayloadSize, Width, BCState, OffsetX`
Category	/ImageFormatControl

Values	Description
1	Off
2	2 times reduction factor

DecimationVertical

Decimation (or sub-sampling) is the process of skipping neighboring pixels during sensor readout. Decimation is used primarily to reduce the number of pixels and thus the amount of data while retaining the original image area angle and image brightness.

`DecimationVertical` controls the vertical sub-sampling of the image.

Note: `DecimationVertical` and `BinningVertical` are mutually exclusive:

- If you enable `DecimationVertical`, `BinningVertical` is disabled.
- After enabling `DecimationVertical`, you must not change `Height` or `OffsetY`.
- Decimation and features to control NUC or DPC are mutually exclusive. Using decimation disables NUC and DPC, and vice versa.

See Image data flow and features order on page 19.

Display name	DecimationVertical
Origin of feature	Camera
Availability	G/CL-030 TEC1 and G/CL-130 TEC1
Feature type	Integer
Access	R/W
Affected features	`PayloadSize, HeightMax, ImageSize, AcquisitionFrameRateLimit, AcquisitionFrameRate, ExposureTime, StreamHoldCapacity, NonImagePayloadSize, Height, BCState, OffsetY`
Category	/ImageFormatControl

Values	Description
1	Off
2	2 times reduction factor

Height

Height of the image.

Display name	Height
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	`BCState`, `PayloadSize`, `OffsetY`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`
Category	/ImageFormatControl

Values	Description
Camera dependent	Minimum
(Sensor height)	**Default**
Camera dependent	Maximum

HeightMax

Maximum image height for the current image mode.

Vertical binning will change this mode.

Display name	HeightMax
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Pixels
Affected features	`PayloadSize`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Height`, `BCState`, `OffsetY`
Category	/ImageFormatControl

ImageSize

Size of images, for the current format and size.

Display name	ImageSize
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Bytes
Affected features	(None)
Category	/ImageFormatControl

MultipleRegions (subcategory)

This subcategory holds the features to configure and control the multiple regions of the camera.

Notes

- Multiple regions are **available only for** all Goldeye G/CL-008 models, on G/CL-030 TEC1, all G/CL-034 models, and G/CL-130 TEC1.
- Features in the `NonUniformityCorrection` and `DefectPixelCorrection` subcatogries are not supported when `MultipleRegionsEnable` is set *`True`*.
- Enabling `NonUniformityCorrection` and `DefectPixelCorrection` features disables `MultipleRegions` features and vice versa.

Display name	MultipleRegions
Origin of feature	Camera
Feature type	(Subcategory)
Category	/ImageFormatControl

See the Multiple Regions of Interest for Goldeye G/CL application note at www.alliedvision.com/en/support/technical-documentation/goldeye-gcl-documentation for details.

MultipleRegionsEnable

Selects between single region and multiple regions mode. The number of subregions to be configured depends on the camera model.

Note: The height and Y-offset for each active subregion can be configured individually, but the horizontal dimensions are commonly set by `Width` and `OffsetX` for all subregions.

Display name	MultipleRegionsEnable
Origin of feature	Camera
Feature type	Boolean
Access	R/W
Affected features	`Height`, `OffsetY`
Category	/ImageFormatControl/MultipleRegions

Values	Description
`False`	Single region mode is enabled, subregions mode is disabled (**default**). `Height` and `OffsetY` can be used as usual.
`True`	Subregions mode is enabled. `Height` and `OffsetY` features are locked and are automatically aligned with the values set for subregions.

SubRegionMode

[SubRegionSelector]

Enables or disables the selected subregion.

Display name	SubRegionMode
Origin of feature	Camera
Feature type	Boolean
Access	R/W
Affected features	`Height`, `OffsetY`, `SubRegionStatus`
Category	/ImageFormatControl/MultipleRegions

Values	Description
On	The selected subregion is enabled.
Off	The selected subregion is disabled.

SubRegionHeight

[SubRegionSelector]

Height of the selected subregion.

Goldeye G/CL-030 and G/CL-130: If values are entered that are not dividable by 8, `SubRegionHeight` is increased automatically to the next higher available value. For example, if *9* is entered, the value is increased to *16*.

All Goldeye G/CL-008 models, G/CL-034 and G/CL-034 XSWIR models: The total sum of all active SubRegionsHeights must be >= 4.

Display name	SubRegionHeight
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	`Height`, `SubRegionStatus`
Category	/ImageFormatControl/MultipleRegions

Values[1]	Description
8 ; *1*	Minimum
(Height max)	Maximum, depending on the height of other subregions
8 ; *1*	Increment

[1] G/CL-030, G/CL-130 ; all G/CL-008 models, G/CL-034, G/CL-034 XSWIR

SubRegionOffsetY

[SubRegionSelector]

Y-offset of the selected subregion.

Notes for Goldeye G/CL-030 and G/CL-130: If values are entered that are not dividable by 8, `SubRegionOffsetY` is increased automatically to the next higher available value. For example, if *9* is entered, the value is increased to *16*.

Display name	SubRegionOffsetY
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	`OffsetY`, `SubRegionStatus`
Category	/ImageFormatControl/MultipleRegions

Values[1]	**Description**
8 ; *1*	Minimum
(Height max)	Maximum, depending on the height of other subregions
8 ; *1*	Increment

[1] G/CL-030, G/CL-130 ; all G/CL-008 models, G/CL-034, G/CL-034 XSWIR

SubRegionSelector

Selects the subregion in a range from *0* to *n*, where *0* is the index of the first subregion and *n* is the index of the last one.

Display name	SubRegionSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`SubRegionHeight`, `SubRegionMode`, `SubRegionOffsetY`, `SubRegionStatus`
Category	/ImageFormatControl/MultipleRegions

Values[1]	**Description**
0 ; *0*	Minimum
7 ; *31*	Maximum

[1] G/CL-030, G/CL-130 ; all G/CL-008 models, G/CL-034, G/CL-034 XSWIR

SubRegionStatus

[SubRegionSelector]

Displays the status of the selected subregion.

Note: The `SubRegionStatus` is updated only if `MultipleRegionsEnable` is *`True`* and the corresponding `SubRegionMode` is set to *`On`*.

Display name	SubRegionStatus
Origin of feature	Camera
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/ImageFormatControl/MultipleRegions

Values	Description
`Disabled`	The selected subregion is disabled.
`Valid`	The selected subregion is enabled and has a valid configuration.
`OverlapError`[1]	The selected subregion is enabled but has an invalid configuration.

[1]**Note**: Invalid subregions are excluded automatically from the resulting frame.

ImageFormatControl (continued)

The feature descriptions for the `MultipleRegions` subcategory have ended on the previous page. The following features continue the `ImageFormatControl` category, without a subcategory.

OffsetX

Starting column of the readout region (relative to the first column of the sensor) in pixels.

Display name	OffsetX
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	`BCState`, `PayloadSize`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum
2	Interval

OffsetY

Starting row of the readout region (relative to the first row of the sensor) in pixels.

Display name	OffsetY
Origin of feature	Camera
Feature type	Integer
Access	R/W
Unit	Pixels
Affected features	`BCState`, `PayloadSize`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, StreamHoldCapacity, `NonImagePayloadSize`
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

PixelFormat

There are various pixel data formats that GigE cameras can output. Not all cameras support every mode (see the Goldeye G/CL Technical Manuals for details).

Display name	PixelFormat
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	`PayloadSize`, `WidthMax`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Width`, BCState, `OffsetX`, `HeightMax`, `Height`, `OffsetY`, `BinningHorizontal`, `BinningVertical`
Category	/ImageFormatControl

Values	Description
Mono8	Bit depth: 8. One pixel of image data requires 1 byte. Monochrome.
Mono10	Bit depth: 10. One pixel of image data requires 2 bytes, LSB aligned. Monochrome.
Mono10p	Note this value is **available only for** GigE models. Bit depth: 10. One pixel of image data requires 3 bytes, LSB aligned. Monochrome.
Mono10Packed	Note this value is **available only for** GigE models. Bit depth: 10. 2 pixels of image data require 3 bytes. Monochrome. Doesn't support odd Widths.
Mono12	Bit depth: 12. One pixel of image data requires 2 bytes, LSB aligned. Monochrome.
Mono12p	Note this value is **available only for** GigE models. Bit depth: 12. One pixel of image data requires 3 bytes, LSB aligned. Monochrome.
Mono12Packed	Note this value is **available only for** GigE models. Bit depth: 12. 2 pixels of image data require 3 bytes. Monochrome. Doesn't support odd Widths.
Mono14	Bit depth: 14. One pixel of image data requires 2 bytes, LSB aligned. Monochrome.

SensorBits

Maximum bit depth of the sensor.

Display name	SensorBits
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/ImageFormatControl

Values	Description
0	Minimum
Camera dependent	Maximum

SensorHeight

The total number of pixel rows on the sensor.

Display name	SensorHeight
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	`SensorOffsetY`, `Height`, `BCState`, `PayloadSize`, `OffsetY`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `HeightMax`, `AutoModeRegionOffsetY`, `AutoModeRegionHeight`
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

SensorOffsetX

Absolute starting column of the readout region relative to the first column of the sensor, in pixels.

Display name	SensorOffsetX
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

SensorOffsetY

Absolute starting row of the readout region relative to the first row of the sensor, in pixels.

Display name	SensorOffsetY
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

SensorType

Type of image sensor.

Display name	SensorType
Origin of feature	Camera
Feature type	Enumeration
Access	R/C
Affected features	(None)
Category	/ImageFormatControl

Values	Description
Mono	(Default and only possible value.)

SensorWidth

The total number of pixel columns on the sensor.

Display name	SensorWidth
Origin of feature	Camera
Feature type	Integer
Access	R/C
Unit	Pixels
Affected features	`SensorOffsetX`, `WidthMax`, `PayloadSize`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Width`, `BCState`, `OffsetX`, `Height`, `OffsetY`, `AutoModeRegionOffsetX`, `AutoModeRegionWidth`
Category	/ImageFormatControl

Values	Description
0	Minimum (**default**)
Camera dependent	Maximum

TestPatternGeneratorSelector

Selects the test pattern generator to control `TestPattern`.

Note: `TestPattern` features are **available only for** Goldeye G/CL-030 TEC1 and Goldeye G/CL-130 TEC1.

Display name	TestPatternGeneratorSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageFormatControl

Values	Description
Sensor	The sensor is selected to generate the test image.

TestPattern

[TestPatternGeneratorSelector]

Selects the type of test pattern to be generated by the camera.

Notes

- `TestPattern` features are **available only for** all Goldeye G/CL-008, Goldeye G/CL-030 TEC1, all Goldeye G/CL-034, and Goldeye G/CL-130 TEC1.
- `TestPattern` settings cannot be stored in user sets. After a power cycle, `TestPattern` features are disabled by default.
- After activating a test pattern, do not use `BlackLevel`, `Decimation`, `Gain`, `PixelFormat`, or `ImageCorrection` features. Otherwise, the test pattern is distorted and cannot be used for calibration.

Display name	TestPattern
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/ImageFormatControl

Values	Description
Off	The test pattern generator is disabled (**default**). The image is acquired by the sensor.
GreyHorizontalRamp	The test pattern generator is enabled. The image is filled horizontally with values increasing from dark to bright continually. When maximum brightness is reached, the pattern continues from dark to bright again. **G/CL-030/130**: With Mono12 and Mono12packed as pixel formats, the maximum value available for brightness is limited by `SensorWidth`. With Mono8, the value is increased by 1 every 4 pixels. **All G/CL-008, all G/CL-034**: The start of the pattern is controlled by `TestPatternSpecificParameter1`.
Vertical	The test pattern generator is enabled. **G/CL-030/130**: The image is filled with the sequential pattern of 1 pixel wide stripes. • Pattern for **Mono12**: 0xFFE; 0x555; 0xAAA; 0x001 • Pattern for **Mono8**: 0xFF; 0x55; 0xAA; 0x00 (the sensor is operating in 10-bit mode). **G/CL-008, G/CL-034**: The pattern is controlled by `TestPatternSpecificParameter1` that changes the brightness and increment of the vertical stripes.

TestPatternSpecificParameter1

[TestPatternGeneratorSelector]

Sets the minimum brightness value of the test pattern.

Note: This feature is **available only for** all Goldeye G/CL-008 and all Goldeye G/CL-034.

Display name	TestPatternGeneratorSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/ImageFormatControl

Values	Description
1	Minimum value, the gray horizontal ramp starts with the minimum brightness value. For a brighter ramp, select higher values.
Pixel format dependent	Maximum value

Width

Width of the image.

Display name	Width
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Pixels
Affected features	`BCState`, `PayloadSize`, `OffsetX`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`
Category	/ImageFormatControl

Values	Description
8	Minimum
(Sensor width)	Maximum (**default**)

WidthMax

Maximum image width for the current image mode. Horizontal binning, for example, will change this value.

Display name	WidthMax
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	`PayloadSize`, `ImageSize`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `StreamHoldCapacity`, `NonImagePayloadSize`, `Width`, `BCState`, `OffsetX`
Category	/ImageFormatControl

Values	Description
0	Minimum
(Sensor width)	Maximum (**default**)

Info

Numerical information that uniquely identifies the device.

Display name	Info
Origin of feature	Camera
Feature type	(Category)

GevDeviceMACAddress

48-bit MAC address of the GVCP interface of the selected remote device.

Display name	DeviceMACAddress
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Affected features	(None)
Category	/Info

BasePartNumber

Display name	BasePartNumber
Origin of feature	Transport layer
Feature type	Integer
Affected features	(None)
Category	/Info

BootLoaderVersionBuild

Build information of the boot loader.

Display name	BootLoaderVersionBuild
Origin of feature	Transport layer
Feature type	Integer
Affected features	(None)
Category	/Info

BootLoaderVersionMajor

Major part of the Boot loader version number (part before the decimal)

Display name	BootLoaderVersionMajor
Origin of feature	Transport layer
Feature type	Integer
Affected features	(None)
Category	/Info

BootLoaderVersionMinor

Minor part of boot loader version number (part after the decimal).

Display name	BootLoaderVersionMinor
Origin of feature	Transport layer
Feature type	Integer
Affected features	(None)
Category	/Info

DevicePartNumber

Manufacturer‘s part number.

Display name	DevicePartNumber
Origin of feature	Camera
Feature type	String
Access	R
Affected features	(None)
Category	/Info

FirmwareVersionBuild

Firmware Build information.

Display name	FirmwareVerBuild
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Info

FirmwareVersionMajor

Major part of the firmware version number (part before the decimal).

Display name	FirmwareVerMajor
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Info

FirmwareVersionMinor

Minor part of firmware version number (part after the decimal).

Display name	FirmwareVerMinor
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Info

UniqueID

Display name	UniqueID
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Info

VariantPartNumber

Display name	VariantPartNumber
Origin of feature	Camera
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Info

LUTControl

This category handles all features necessary to apply the look-up table (LUT). Refer to the Goldeye G/CL Technical Manual for a description of how the look-up table is applied.

Display name	LUTControl
Origin of feature	Camera
Feature type	(Category)

LUTBitDepthIn

Bit depth of the input value of the LUT block.

Display name	LUTBitDepthIn
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/LUTControl

LUTBitDepthOut

Bit depth of the output value of the LUT block.

Display name	LUTBitDepthOut
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/LUTControl

LUTDatasetActive

[LUTDatasetSelector]

The *`LUTDatasetSelector`* value of the last loaded data set. If the user set is saved, this value will define which LUT to load at start-up.

Invalidate by `LUTSelector`.

Display name	LUTDatasetActive
Origin of feature	Camera
Feature type	Integer
Access	R
Affected features	(None)
Category	/LUTControl

Values	Description
0	Minimum (**default**)
(Sensor width)	Maximum

LUTDatasetLoad

[LUTDatasetSelector]

Loads a LUT data set from file into the volatile memory of the LUT module. The file to be loaded is defined by `LUTDatasetSelector`.

Display name	LUTDatasetLoad
Origin of feature	Camera
Access	W
Feature type	Command
Affected features	(None)
Category	/LUTControl

LUTDatasetSave

[LUTDatasetSelector]

Stores the current LUT data set from the volatile memory of the camera to a file. The `LUTDatasetSelector` defines the file where the LUT data is saved. Note that some data sets are factory defined and cannot be overwritten.

Display name	LUTDatasetSave
Origin of feature	Camera
Access	W
Feature type	Command
Affected features	(None)
Category	/LUTControl

LUTDatasetSelector

The data set selector corresponds to the LUT file selectors. It connects the LUT data set to the corresponding LUT file selectors, accessible via the `FileAccess` category features.

The `LUTDatasetSelector` may point to an empty file selector. If the first file holds no data, and `LUTDatasetSelector0` is used to try loading the file, an error occurs. Invalidate by `LUTSelector`.

Display name	LUTDatasetSelector
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
0	Points to LUT_000 (**default**)
1	Points to LUT_001
2	Points to LUT_002
3	Points to LUT_003
4	Points to LUT_User_000
5	Points to LUT_User_001
6	Points to LUT_User_002
7	Points to LUT_User_003

LUTEnable

[LUTSelector]

Activates or deactivates the LUT selected by `LUTSelector`.

Invalidate by `LUTSelector`.

Display name	LUTEnable
Origin of feature	Camera
Feature type	Boolean
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
`False`	Disable the Look-up-table (**default**).
`True`	Enable the Look-up-table.

LUTIndex

[LUTSelector]

Controls the index (offset) to access a single table entry in the selected LUT via the `LUTValue` feature.

Invalidate by `LUTSelector`.

Display name	LUTIndex
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
`0`	Minimum (**default**)
(2LUTBitDepthOut-1)	Maximum

LUTSelector

Selects the LUT instance to control. The number of available LUT instances are camera specific.

Display name	LUTSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
Luminance	Default

LUTValue

[LUTSelector]

Returns or sets the value of the table entry at index in the look-up table at entry `LUTIndex`.

Invalidated by `LUTSelector` and `LUTIndex`.

Display name	LUTValue
Origin of feature	Camera
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
0	Minimum
(2LUTBitDepthOut-1)	Maximum

LUTValueAll

[LUTSelector]

Allows access to the complete table which is currently selected by `LUTSelector`.

This register should be treated as byte array. The size per entry is 2 bytes, which store a 16 bit unsigned integer.

The byte order is low significant byte first (little-endian), number of entries available in this field is *`2LUTBitDepthIn -1.`*

Returns or sets the values of the complete LUT.

Invalidated by `LUTSelector`.

Display name	LUTValueAll
Origin of feature	Camera
Feature type	Register
Access	R/W
Affected features	(None)
Category	/LUTControl

Values	Description
`0`	Minimum
(2LUTBitDepthOut-1)	Maximum

Stream

This category handles features about the data stream.

Display name	Stream
Origin of feature	Camera
Feature type	(Category)

Info (subcategory)

This subcategory provides general stream related information.

Display name	Info
Origin of feature	Camera
Feature type	(Subcategory)
Category	/Stream

GVSPFilterVersion

Version of the GVSP Filter driver.

Display name	GVSPFilterVersion
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	String
Access	R/C
Affected features	(None)
Category	/Stream/Info

Multicast (subcategory)

`Multicast` mode allows the camera to send image data to all hosts on the same subnet as the camera. The host computer (or Vimba Viewer application instance) that first enables `Multicast` mode is the master and controls all camera parameters. All other hosts or instances are the monitors and can view image data only.

Most GigE switches support a maximum packet size of 1500 in `Multicast` mode.

When using clients with Linux, you have to configure the IP subsystem to process `Multicast` IP traffic.

Display name	Multicast
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	(Subcategory)
Category	/Stream

MulticastEnable

Enables `Multicast` mode. In `Multicast` mode all computers on the same subnet as the camera can receive image data from the camera `MulticastIPAddress`.

Display name	MulticastEnable
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W
Affected features	(None)
Category	/Stream/Multicast

Values	Description
True	Enables Multicast.
False	Disables Multicast. (**default**)

MulticastIPAddress

Sets the multicast IP address.

Display name	MulticastIPAddress
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/C
Affected features	(None)
Category	/Stream/Multicast

Settings (subcategory)

This subcategory defines the settings of the GVSP (GigE Vision Streaming Protocol).

Display name	AutoModeParameters
Origin of feature	Camera
Feature type	(Subcategory)
Category	/Stream

GVSPAdjustPacketSize

Requests the packet size used to be adjusted automatically.

Display name	GVSPAdjustPacketSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Command
Affected features	(None)
Category	/Stream/Settings

GVSPBurstSize

Maximum number of GVSP packets to be processed in one burst.

Display name	GVSPBurstSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Unit	GVSP Packets
Affected features	(None)
Category	/Stream/Settings

Values	**Description**
1	Minimum
32	**Default**
256	Maximum

GVSPDriverSelector

Streaming driver to be used.

Display name	GVSPDriverSelector
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
Filter	Selects the filter drivers stream engine (**default**).
Socket	Selects the transport layers stream engine.

GVSPHostReceiveBuffers

Number of buffers to be used by the network socket. Only applicable when not using the Filter Driver.

Display name	GVSPHostReceiveBuffers
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
256	Minimum
512	**Default**
2,048	Maximum

GVSPMaxLookBack

Size of the look back window, in packets, when determining if a stream packet is missing. When a stream packet arrives out of order, the driver skips back `GVSPMaxLookBack` packets to see if the packets previous to this point have all arrived. If not, a resend is issued. A lower value allows the driver less time to assemble out-of-order packets; a larger value allows the driver more time. If the value is set too low, the driver will issue unnecessary resends. If the value is set too high and a packet truly is missing, the driver will issue a resend but the camera may no longer have the required packet in its resend buffer and the packet will be dropped. The ideal value is system dependent.

Display name	GVSPMaxLookBack
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
1	Minimum
30	**Default**
1,024	Maximum

GVSPMaxRequests

The maximum number of resend requests that the host will attempt before marking a packet dropped.

Display name	GVSPMaxRequests
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
1	Minimum
3	**Default**
512	Maximum

GVSPMaxWaitSize

Maximum number of received GVSP packets following a resend request to wait before requesting again.

Display name	GVSPMaxWaitSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
8	Minimum
100	**Default**
1,024	Maximum

GVSPMissingSize

Maximum number of simultaneous missing GVSP packets before dropping the frame.

Display name	GVSPMissingSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
0	Minimum (=Off)
256	**Default**
1,024	Maximum

GVSPPacketSize

GVSP Packet size.

Display name	GVSPPacketSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Unit	Bytes
Affected features	`DeviceStreamChannelPacketSize`, `StreamHoldCapacity`, `DeviceLinkThroughputLimit`, `AcquisitionFrameRateLimit`, `AcquisitionFrameRate`, `ExposureTime`, `GevSCPSPacketSize`
Category	/Stream/Settings

Values	Description
Camera dependent	All values

GVSPTiltingSize

Maximum number GVSP packets received from a following frame before dropping the frame.

Display name	GVSPTiltingSize
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/Stream/Settings

Values	Description
0	Minimum (=Off)
100	**Default**
1,024	Maximum

GVSPTimeout

End of stream timeout. If no stream packet received before `GVSPTimeout`, host requests resend, up to `GVSPMaxRequests` times. If still no packet received from camera, packet is marked as dropped.

Display name	GVSPTimeout
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Unit	Milliseconds (1^{-3} s)
Affected features	(None)
Category	/Stream/Settings

Values	Description
10	Minimum
70	**Default**
5,000	Maximum

Statistics (subcategory)

The packet counts in this category cover the image transport. Packets used for camera control or event data are not counted. All counters are reset at AcquisitionStart.

Display name	Statistics
Origin of feature	Camera
Feature type	(Subcategory)
Category	/Stream

StatFrameRate

Rate at which the device is acquiring frames, derived from the frame timestamps.

Display name	StatFrameRate
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Float
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatFrameDelivered

Number of error-free frames captured since the start of imaging.

Display name	StatFramesDelivered
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatFrameDropped

Number of incomplete frames received by the host due to missing packets (not including shoved frames).

Display name	StatFramesDropped
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatFrameRescued

Number of frames that initially had missing packets but were successfully completed after packet resend.

Display name	StatFramesRescued
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatFrameShoved

Number of frames dropped because the transfer of a following frame was completed earlier.

Display name	StatFramesShoved
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatFrameUnderrun

Number of frames missed due to the non-availability of a user supplied buffer.

Display name	StatFramesUnderrun
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatLocalRate

Inverse of time interval between the last two frames (faulty or not) received by the host. No averaging is performed.

In case of error-free frame reception, `StatLocalRate` is similar to `StatFrameRate`, except that the host clock is used instead of frame timestamps for measuring the time interval between frames.

Otherwise, `StatLocalRate` and `StatFrameRate` may differ significantly.

Display name	StatLocalRate
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Float
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatPacketErrors

Number of improperly formed packets. If this number is non-zero, it suggests a possible cable or camera hardware failure.

Display name	StatPacketsErrors
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatPacketMissed

Number of packets missed since the start of imaging.

If everything is configured correctly, this number should remain zero, or at least very low compared to `StatPacketReceived`.

Display name	StatPacketsMissed
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatPacketReceived

Number of error-free packets received by the driver since the start of imaging, this number should grow steadily during continuous acquisition.

Display name	StatPacketsReceived
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatPacketRequested

Number of missing packets that were requested to be resent from the device.

If everything is configured correctly, this number should remain zero, or at least very low compared to `StatPacketReceived`.

Display name	StatPacketsRequested
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatPacketResent

Number of packets resent by the camera since the start of imaging.

Display name	StatPacketsResent
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Integer
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StatTimeElapsed

Elapsed time (in seconds) since the streaming was started.

Display name	StatTimeElapsed
Origin of feature	Transport layer
Availability	GigE Vision models only
Feature type	Float
Access	R
Affected features	(None)
Category	/Stream/Statistics

Values	Description
0	Minimum
Camera dependent	Maximum

StreamInformation

Display name	StreamInformation
Origin of feature	Camera
Feature type	(Category)

StreamID

Device's unique ID for the stream.

Display name	StreamID
Origin of feature	Transport layer
Feature type	String
Access	R
Affected features	(None)
Vimba	V1.3 or later
Category	/StreamInformation

StreamType

Identifies the transport layer technology of the stream.

Display name	StreamType
Origin of feature	Transport layer
Feature type	Enumeration
Access	R
Unit	(None)
Vimba	V1.3 or later
Category	/StreamInformation

TransportLayerControl

This category contains the features related to transport layer control.

Display name	TransportLayerControl
Origin of feature	Camera
Feature type	(Category)

CameraLink (subcategory)

Note the features within this subcategory apply to Camera Link cameras only.

Display name	CameraLink
Origin of feature	Camera
Feature type	(Subcategory)
Category	/TransportLayerControl

CLConfiguration

Describes the configuration used by the camera.

Display name	CLConfiguration
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Enumeration
Access	R
Affected features	(None)
Category	/TransportLayerControl/CameraLink

Values	Description
Base	Standard base configuration described by the Camera Link standard.

ClClockFrequency

Allows to change the clock frequency of the camera link backend.

Higher values allow higher bandwidths, lower values reduce bit error problems with longer cables.

Display name	CLClockFrequency
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/W
Affected features	*AcquisitionFrameRate*, *AcquisitionFrameRateLimit*, *DeviceClockFrequency*
Category	/TransportLayerControl/CameraLink

Values	Description
25,000,000 *40,000,000*	Clock frequencies available on CL-008.
25,000,000 *40,000,000*	Clock frequencies available on CL-032.
25,000,000 *55,000,000* *85,000,000*	Clock frequencies available on CL-033.

ClLValToFValDelay

Defines the gap between the falling edges of the last lines' LVAL signal and the FVAL signal.

Display name	ClLvalToFvalDelay
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/W
Unit	Camera Link clock cycles
Affected features	AcquisitionFrameRate, AcquisitionFrameRateLimit
Category	/TransportLayerControl/CameraLink

Values	Description
0	Minimum
32	**Default**
1,024	Maximum

ClLValToLValDelay

Defines the width of the line gap.

Influence of the line gap adjustment

This value may have a significant impact on the maximum possible frame rate.

Reducing this value may increase the frame rate, but reducing it too much may cause the camera to mask out pixels using the DVAL signal and to sporadically extend the line gap to a value beyond the value set here. Possible consequences are an irregular line gap timing and an increasing delay between the recorded scene and the received images.

Furthermore, the camera may drop frames internally. This occurs when the camera cannot provide the data in a pace fast enough to meet the timing set by the `ClLValToLValDelay` parameter. However, if the frame grabber evaluates the same DVAL signal, the received images will still be valid.

Decreasing this value might be useful when using small ROI's to maximize the frame rate. If unsure, it is recommended to keep this parameter's default setting.

The values greater than or equal to the default value can be considered to be safe.

Display name	ClLvalToLvalDelay
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/W
Unit	Camera Link clock cycles
Affected features	`AcquisitionFrameRate`, `AcquisitionFrameRateLimit`
Category	/TransportLayerControl/CameraLink

Values	Description
1	Minimum
32	**Default** for CL-008 and CL-032
64	**Defaul**t for CL-033
1,024	Maximum

ClMinFValToFValDelay

Defines the minimum gap from one falling edge to the next rising edge of the FVAL signal.

Depending on the camera's operation mode, the real gap between two FVAL signals may be bigger than the value set here. This parameter just defines the minimum allowed value.

Display name	ClMinFvalToFvalDelay
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/W
Unit	Camera Link clock cycles
Affected features	`AcquisitionFrameRate`, `AcquisitionFrameRateLimit`
Category	/TransportLayerControl/CameraLink

Values	Description
1	Minimum
32	**Default**
1,024	Maximum

ClMinFValToLValDelay

Defines the minimum gap between the rising edges of the FVAL and the first lines LVAL signal.

The length of this gap is defined by either (3 * Width + 32) or the value of `ClMinFValToLValDelay`, whichever is the greater.

The real delay may be higher than the value specified here.

Display name	ClMinFvalToLvalDelay
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Integer
Access	R/W
Unit	Camera Link clock cycles
Affected features	`AcquisitionFrameRate`, `AcquisitionFrameRateLimit`, `ExposureTime`
Category	/TransportLayerControl/CameraLink

Values	Description
0	Minimum
32	**Default**
1,023	Maximum

DeviceTapGeometry

Describes the geometrical properties characterizing the taps of a camera as presented at the output of the device

Display name	DeviceTapGeometry
Origin of feature	Camera
Availability	Camera Link models only
Feature type	Enumeration
Access	R/(W)
Category	/TransportLayerControl/CameraLink

Values	Description
Geometry_1X_1Y	1-tap configuration (**default**, with pixel formats Mono8, Mono12 and Mono14)
Geometry_1X2_1Y	2-tap configuration (with pixel formats Mono8 and Mono12 only)

GigEVision (subcategory)

This subcategory contains the features pertaining to the GigE Vision transport layer of the device.

Display name	GigEVision
Origin of feature	Camera
Feature type	(Subcategory)
Category	/TransportLayerControl

GevCurrentIPConfigurationDHCP

Controls whether the DHCP IP configuration scheme is activated on the given logical link.

Display name	GevCurrentIPConfigurationDHCP
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W
Affected features	(None)
Category	/TransportLayerControl/GigEVision

Values	Description
True	Activate the DHCP IP configuration scheme (**default**).
False	Deactivate the DHCP IP configuration scheme.

GevCurrentIPConfigurationLLA

Controls whether the Link Local Address IP configuration scheme is activated on the given logical link.

Currently as per the GigE Vision specification, LLA cannot be disabled.

Display name	GevCurrentIPConfigurationLLA
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W
Affected features	(None)
Category	/TransportLayerControl/GigEVision

Values	Description
True	Activate the Link Local Address IP configuration scheme (**default**).
False	Deactivate the Link Local Address IP configuration scheme.

GevCurrentIPConfigurationPersistentIP

Controls whether the Persistent IP configuration scheme is activated on the given logical link.

Display name	GevCurrentIPConfigurationPersistentIP
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Boolean
Access	R/W
Affected features	(None)
Category	/TransportLayerControl/GigEVision

Values	Description
True	Activate the Persistent IP configuration scheme.
False	Deactivate the Persistent IP configuration scheme (**default**).

GevInterfaceSelector

Selects which logical link to control.

Display name	GevInterfaceSelector
Origin of feature	Camera
Availability	GigE Vision models only
Feature type	Integer
Access	R/W
Affected features	(None)
Category	/TransportLayerControl/GigEVision

GevMACAddress

[GevInterfaceSelector]

MAC address of the link specified by `GevInterfaceSelector`.

Display name	GevMACAddress
Origin of feature	Camera
Feature type	Integer
Availability	GigE Vision models only
Access	R
Affected features	(None)
Category	/TransportLayerControl/GigEVision

TransportLayerControl (continued)

The feature descriptions for the `GigEVision` subcategory have ended on the previous page. The following features continue the `TransportLayerControl` category, without a subcategory.

PayloadSize

Total size of payload in bytes.

Display name	PayloadSize
Origin of feature	Camera
Availability	Both Camera Link and GigE Vision models
Feature type	Integer
Access	R
Unit	Bytes
Affected features	(None)
Category	/TransportLayerControl

Values	Description
0	Minimum
Camera dependent	Maximum

If	Then
`ChunkModeActive` = *True*	`PayloadSize` = *ImageSize + NonImagePayloadSize + 8*
`ChunkModeActive` = *False*	`PayloadSize` = *ImageSize*

StreamHold (subcategory)

Normally, the camera sends data to the host computer immediately after completion of exposure. Enabling `StreamHold` delays the transmission of data, storing it in on-camera memory, until `StreamHold` is disabled.

This feature can be useful to prevent GigE network flooding in situations where a large number of cameras connected to a single host computer are capturing a single event. Using the `StreamHold` function, each camera will hold the event image data until the host computer disables `StreamHold` for each camera in turn.

Display name	StreamHold
Origin of feature	Camera
Feature type	(Subcategory)
Category	/TransportLayerControl

StreamHoldCapacity

The maximum number of images (for the current size and format) that can be stored on the camera when `StreamHold` is enabled. Used in `AcquisitionMode` = *`Recorder`*, or `StreamHoldEnable` = *`On`*. This value is different for each camera depending on the camera internal memory size and the image size.

Display name	StreamHoldCapacity
Origin of feature	Camera
Feature type	Integer
Access	R
Unit	Frames
Affected features	(None)
Category	/TransportLayerControl/StreamHold

StreamHoldEnable

Control on-camera image storage; this feature is like a “pause” button for the image stream.

Display name	StreamHoldEnable
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/TransportLayerControl/StreamHold

Values	Description
On	Images remain stored on the camera, and are not transmitted to the host.
Off	The image stream resumes, and any stored images are sent to the host (**default**).

UserSetControl

The User Set Control describes the features for global control of the device settings. It contains the features to save and load the user device settings.

Display name	UserSetControl
Origin of feature	Camera
Feature type	(Category)

Features that can be saved in user sets

Generally, all features can be saved in user sets, except for:

- Selectors
- Commands
- Read-only features
- Transport layer features (Origin of feature = Transport layer)
- `TestPattern`

UserSetDefaultSelector

Selects the individual user set to be loaded on power-up or reset.

Display name	UserSetDefaultSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	(None)
Category	/UserSetControl

Values	Description
`Default`	Selects the default user set (**default**).
`UserSet1`	Selects user set 1.
`UserSet2`	Selects user set 2.
`UserSet3`	Selects user set 3.
`UserSet4`	Selects user set 4.

UserSetLoad

[UserSetSelector]

Loads camera parameters from the user set specified by `UserSetSelector` and activates them.

Display name	UserSetLoad
Origin of feature	Camera
Feature type	Command
Access	R
Affected features	See Features that can be saved in user sets on page 207.
Category	/UserSetControl

UserSetSave

[UserSetSelector]

Saves camera parameters to the user set specified by `UserSetSelector`. The Default setting cannot be overwritten.

Display name	UserSetSave
Origin of feature	Camera
Feature type	Command
Access	W
Affected features	See Features that can be saved in user sets on page 207.
Category	/UserSetControl

UserSetSelector

Selects a user set, for loading or saving camera parameters.

Display name	UserSetSelector
Origin of feature	Camera
Feature type	Enumeration
Access	R/W
Affected features	See Features that can be saved in user sets on page 207.
Category	/UserSetControl

Values	Description
`Default`	Selects the default user set (**default**).

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