Allied Vision

Goldeye Firmware Release Notes

Goldeye G/CL

Cool, Stabilized (TEC1/T1, TEC2), and TECless variants

2021-Nov-25

Goldeye G/CL Features Reference

For detailed information on camera controls, read the Goldeye G/CL Features Reference, which is available on the Allied Vision Technical Documentation web page.

It describes the standard and advanced camera controls for GigE Vision and Camera Link SWIR cameras as seen from the Vimba Viewer or GenICam compliant third-party software solutions.

www.alliedvision.com/en/support/technical-documentation/goldeye-gcl-documentation

Firmware update instructions

For more information on updating the firmware on your Goldeye camera, refer to the chapter Firmware Update of the Goldeye G/CL Technical Manual at

www.alliedvision.com/en/support/technical-documentation/goldeye-gcl-documentation

Supported cameras

The firmware updates listed are valid for all Goldeye G and Goldeye CL models.

Model naming

Generally, Goldeye model naming is fully consistent. Due to technical reasons, Goldeye models with Sony IMX990 and IMX991 sensors deviate from this practice.

The naming pattern follows the convention shown in the following example:

- Goldeye G-130 **TEC1** in documentation and on the website
- Goldeye G-130 **T1** on product labels and in the DoC (document of conformity).

Firmware releases at a glance

The following table lists the latest firmware version for your Goldeye G/CL camera.
Added models and notes are **marked bold**.

Model	FW version	FW release date
Goldeye G **G-030 TEC1**, **G-130 TEC1 only** Goldeye CL **CL-030 TEC1**, **CL-130 TEC1 only**	FW 02.24.37527	2021-Nov-25
Goldeye G **G-030 TEC1**, **G-130 TEC1 only**	FW 02.22.35663	2021-Jul-08
Goldeye G **G-034 TEC1 only**	FW 02.20.33378	2021-Apr-28
Goldeye G G-008 TEC1, G-008 Cool TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless (**G-034 TEC1 excluded)** Goldeye CL CL-008 TEC1, CL-008 Cool TEC1, CL-032 TEC1, CL-032 Cool TEC2, CL-033 TEC1, CL-033 TECless, CL-034 TEC1	FW 02.18.33356	2021-Apr-28
Goldeye G **G-034 TEC1 only** Goldeye CL **G-034 TEC1 only**	FW 02.20.29870	2020-Aug-07
Goldeye G G-008 TEC1, G-008 Cool TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless Goldeye CL CL-008 TEC1, CL-008 Cool TEC1, CL-032 TEC1, CL-032 Cool TEC2, CL-033 TEC1, CL-033 TECless	FW 02.18.20213	2018-May-15
Goldeye G G-008 TEC1, **G-008 Cool TEC1**, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless Goldeye CL CL-008 TEC1, **CL-008 Cool TEC1**, CL-032 TEC1, **CL-032 Cool TEC2**, CL-033 TEC1, CL-033 TECless	FW 02.16.19998	2018-Mar-20
Goldeye G G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1 Goldeye CL CL-008 TEC1, CL-032 TEC1, CL-033 TEC1	FW 02.14.19002	2017-Jun-14
Goldeye G G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1 Goldeye CL CL-008 TEC1, CL-032 TEC1, CL-033 TEC1	FW 02.12.17558	2016-Jul-07
Goldeye G G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1 Goldeye CL **CL-008 TEC1, CL-032 TEC1, CL-033 TEC1**	FW 02.10.16613	2016-Mar-04

Table 1: (Sheet 1 of 2)Latest firmware version by model (Sheet 1 of 2)

Model	FW version	FW release date
Goldeye G **G-008 TEC1**, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1	FW 02.08.15169	2015-Aug-24
Goldeye G G-032 TEC1, G-032 Cool TEC2, G-033 TEC1	FW 02.06.06	2015-Apr-21
Goldeye G G-032 TEC1, G-032 Cool TEC2, **G-033 TEC1**	FW 02.06.05	2015-Mar-20
Goldeye G **See warning below** G-032 TEC1, **G-032 Cool TEC2**	FW 02.04.04	2014-Oct-30
Goldeye G **See warning below** G-032 TEC1	FW 02.02.02	2014-Jul-22

Table 1: (Sheet 2 of 2)Latest firmware version by model (Sheet 2 of 2)

NOTICE

Damage to the camera calibration

Updating or downgrading to firmware **versions below V02.06.02** can destroy user sets and sensor parameter configuration, independently of the firmware previously installed on the camera.

FW 02.24.37527

Release date: 2021-Nov-25

Supported models

Camera family	Model
Goldeye G	G-030 TEC1, G-130 TEC1
Goldeye CL	CL-030 TEC1, CL-130 TEC1

Table 2: Supported models

New models

Goldeye CL-030 TEC1, CL-130 TEC1

New features

- *Average* option is added to `BinningHorizontalMode` and `BinningVerticalMode`.
- Enable user access: `BlackLevel` (Goldeye G/CL-030 TEC1 and G/CL-130 TEC1) default value = 0
- `Decimation`
- `SensorTemperatureTargetSetpoint` (Goldeye G/CL-030 TEC1 and G/CL-130 TEC1)

Changed features

`BlackLevel` (Goldeye G-030 TEC1 and G-130 TEC1) changed default value = 0

Resolved issues

Affected models	Description
G-030 TEC1, G-130 TEC1	Recorder mode is not supported
G-030 TEC1, G-130 TEC1	External exposure triggers are limited by `ExposureTime`.
G-030 TEC1, G-130 TEC1	External triggers do not work properly with enabled `TriggerOverlap` when the trigger frequency exceeds the calculated `FrameRateLimit`.
G-030 TEC1, G-130 TEC1	`Height` is not set properly by the camera when using `BinningVertical` of 8.
G-030 TEC1, G-130 TEC1	`Width` is not set properly by the camera when using `BinningHorizontal` of 8.

Table 3: Resolved issues

FW 02.22.35663

Release date: 2021-Jul-08

Supported models

Camera family	Model
Goldeye G	G-030 TEC1, G-130 TEC1

Table 4: Supported models

New models

Goldeye G-030 TEC1, G-130 TEC1

New features

- No user access: `BlackLevel` (Goldeye G-030 TEC1 and G-130 TEC1) with default value = 240
- `Gain` (G-030 TEC1, G-130 TEC1, instead of `SensorGain`)
- `ContrastUserInputMax`
- `ContrastUserInputMin`

Known issues

Affected models	Description	Workaround
G-030 TEC1, G-130 TEC1	Recorder mode is not supported	Not applicable
G-030 TEC1, G-130 TEC1	External exposure triggers are limited by `ExposureTime`.	Set `ExposureTime` to a value larger than the expected duration of the external trigger signal.
G-130 TEC1	External triggers do not work properly with enabled `TriggerOverlap` when the trigger frequency exceeds the calculated `FrameRateLimit`.	Select values supported by the `FrameRateLimit` of the camera.
G-030 TEC1	`Height` is not set properly by the camera when using `BinningVertical` of 8.	Set `Height` manually to a value smaller than `HeightMax`.
G-030 TEC1	`Width` is not set properly by the camera when using `BinningHorizontal` of 8.	Set `Width` manually to a value smaller than `WidthMax`.

Table 5: Known issues

FW 02.20.33378

Release date: 2021-Apr-28

Supported models

Camera family	Model
Goldeye G	G-034 TEC1

Table 6: Supported models

Resolved issues

Affected models	Description
G-034	Sporadic receiver hangup in GigE variants

Table 7: Resolved issues

FW 02.18.33356

Release date: 2021-Apr-28

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-008 Cool TEC1, G-030 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless, G-130 TEC1
Goldeye CL	CL-008 TEC1, CL-008 Cool TEC1, CL-032 TEC1, CL-032 Cool TEC2, CL-033 TEC1, CL-033 TECless, CL-034 TEC1

Table 8: Supported models

Resolved issues

Affected models	Description
All models, **except for G-034**	Sporadic receiver hangup in GigE variants

Table 9: Resolved issues

FW 02.20.29870

Release date: 2020-Aug-07

Supported models

Camera family	Model
Goldeye G	G-034 TEC1
Goldeye CL	G-034 TEC1

Table 10: Supported models

New models

Goldeye G-034 TEC1,
Goldeye CL-034 TEC1

FW 02.18.20213

Release date: 2018-May-15

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-008 Cool TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless
Goldeye CL	CL-008 TEC1, CL-008 Cool TEC1, CL-032 TEC1, CL-032 Cool TEC2, CL-033 TEC1, CL-033 TECless

Table 11: Supported models

New features

- Implemented new `SensorTemperatureControlMode` in `TemperatureControlTarget` that allows heating at one particular T-setpoint for Goldeye G/CL-008 variants.
- Introduced new enum feature `SensorTemperatureTargetSetpoint` to select where the heating is active.

FW 02.16.19998

Release date: 2018-Mar-20

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-008 Cool TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1, G-033 TECless
Goldeye CL	CL-008 TEC1, CL-008 Cool TEC1, CL-032 TEC1, CL-032 Cool TEC2, CL-033 TEC1, CL-033 TECless

Table 12: Supported models

New models

Goldeye G-008 Cool TEC1, G-033 TECless,
Goldeye CL-008 Cool TEC1, CL-032 Cool TEC2, CL-033 TECless

FW 02.14.19002

Release date: 2017-Jun-14

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1
Goldeye CL	CL-008 TEC1, CL-032 TEC1, CL-033 TEC1

Table 13: Supported models

New features

- Implemented automatic contrast feature.
- Restructured `ContrastAuto` registers.
- Implemented the Integrate-then-Read mode (ITR) for the external trigger.
- Optimized the IWR mode settings to correct trigger-induced distortions.

Resolved issues

- Loss of symbols received via UART
- Baud-rate was not set back to default when resetting AccessPrivilege. Register (0x1E0) (affected CL variants only).
- Fixed a bug causing an overflow at long automatic exposures (which led to big deviations in the regulation).
- Fixed a bug in FrameTriggerReady event ID. Set ID to 40026.
- Fixed incorrect behavior at external over triggering.

FW 02.12.17558

Release date: 2016-Jul-07

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1
Goldeye CL	CL-008 TEC1, CL-032 TEC1, CL-033 TEC1

Table 14: Supported models

New features

- Added automatic exposure feature.
- Added support for CC ports (Camera Link).
- Implemented Events for Camera Link variants.
- Added capability to change Camera Link timing parameters including clock frequency.
- Added support for automatic acquisition start after boot if feature is set and saved in user set.
- Improvements in FPGA timing closure.
- Improved and fixed back end Camera Link timing.

Resolved issues

- Fixed an issue which caused sometimes a very dark image when changing Integration Mode.
- Fixed an issue of GenICam feature LutValueAll.
- Fixed an horizontal image offset error (related to all Goldeye CL variants).

FW 02.10.16613

Release date: 2016-Mar-04

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1
Goldeye CL	CL-008 TEC1, CL-032 TEC1, CL-033 TEC1

Table 15: Supported models

New models

Goldeye CL-008, CL-032, CL-033

New features

- Added Camera Link interface.
- Added support for automatic acquisition start after boot if I/O pins Auto Iris Out and In 1 (LineIn1) are connected externally.
- Added GenICam feature `DeviceClockFrequency` and related.

- Improvements in FPGA timing closure.
- Added LED control.
- Added LED flashing during firmware update.
- Added new firmware update method.

Removed or changed features

- Removed GenICam feature `DeviceLinkThroughputLimit` for Camera Link cameras.
- Removed GenICam category `EventControl` and related features for Camera Link cameras.
- Removed unsupported Tap `Geometry 1X3_1Y`.
- Removed `StreamHold` related features for Camera Link cameras.
- Changed `DeviceSFNCFirmwareVersionMinor` to 2.
- Changed vendor name from `Allied Vision Technologies` to `Allied Vision`.

Resolved issues

- Fixed an issue in DeviceInfo.
- Adjusted internal task priorities for Camera Link GenCP processing and stripe correction updates.
- Fixed an issue which caused Vimba error message StartCapture failed! Error-13 when trying to save a UserSet and camera control hangs afterwards.
- Fixed image distortions which occurred after several hours at maximum frame rate (Goldeye CL).
- Fixed an issue with LUTSave.
- Fixed corrupted image output caused by fast external exposure triggering.
- Fixed an RS232 related regression.
- Fixed corrupted image output at high frame rates of Goldeye CL-033.
- Issue fixes and improvements in the MXC calibration.
- Fixed an issue in UART FIFO reset logic.
- Fixed an issue related to DeviceTemperature[Sensor] in Goldeye CL-033 and G-033.
- Fixed a watchdog related issue.
- Fixed the GenCP checksum calculation routine.
- Fix in GenCP routine.
- Fixed an issue in GenCP routine.
- Fixed several control interface UART related issues.
- Fixed some GenICam feature names.
- Removed unsupported Mono12Packed pixel format for Camera Link.
- Fixed a file system related issue which prevented reformatting in some cases.
- Fixed an issue which could cause the image acquisition to stop if a feature had been changed.
- Fixed an issue which could cause the camera to hang during boot process.

FW 02.08.15169

Release date: 2015-Aug-24

Supported models

Camera family	Model
Goldeye G	G-008 TEC1, G-032 TEC1, G-032 Cool TEC2, G-033 TEC1

Table 16: Supported models

New model

Goldeye G-008 TEC1

New or changed features

- Added LUT.
- Added digital binning.
- Added mux stripe correction for Goldeye G-008 and G-032.
- Introduced four user files, named UserData to UserData_4
- Minor changes to Look-up table.

Resolved issues

- Fixed issue related to file handling of MXC.
- Fixed regression in National Instruments MAX support introduced since last commercial release.
- Fixed an issue that caused the camera to output a corrupt image every several thousand frames under certain conditions.
- Fixed an issue that may cause the camera to hang in early boot phase.
- Improvements and fixes around binning: corrected ROI bounds checking and background correction.
- Corrected error in MXC.
- LUT: removed unnecessary polling with NoCache attribute from XML.
- Fixed crash with Freerun as default for AcquisitionStart and AcquisitionEnd.
- Some issue fixes in the file system.
- Modified firmware version numbering: the lowest significant number now designates source code revision.
- Fixed regression regarding file access, introduced with firmware version 02.07.01.
- Defect pixel correction for Goldeye G-008 is now working again at full frame rate, removed workaround from firmware version 02.07.02.
- Workaround: reduced frame rate of Goldeye G-008 a little to get defect pixel correction and StatFrameRate running.
- Fixed an issue that caused the first image after power cycle to be corrupt.

Known issues

- Image acquisition stops sometimes if a binning or ROI feature has been changed. Workaround: Restarting the acquisition.
- Every several thousands of images one image may be corrupt (not corrected).

FW 02.06.06

Release date: 2015-Apr-21

Supported models

Camera family	Model
Goldeye G	G-032 TEC1, G-032 Cool TEC2, G-033 TEC1

Table 17: Supported models

Resolved issue

Fixed issue that caused camera to crash when receiving data over the serial port.

FW 02.06.05

Release date: 2015-Mar-20

Supported models

Camera family	Model
Goldeye G	G-032 TEC1, G-032 Cool TEC2, G-033 TEC1

Table 18: Supported models

New model

Goldeye G-033 TEC1

New or changed features

- Added Background Correction to image processing.
- Modified background correction to use less memory bandwidth to fully support the Goldeye G-033 sensor, the number of integration images is now limited to four.
- Added `IntegrationMode` feature within `AcqusitionControl` category with two values: `IntegrateThenRead` and `IntegrateWhileRead`.
- Further speed optimizations in image processing for Goldeye G-033 sensor.
- Added workaround for the issue that Vimba rewrites `AcquisitionFrameRate` feature with a wrong value after the camera (re)boots.
- Changed limitations for `AcqusitionFrameRate` feature.
- Changed (optimized) some timing parameters for Goldeye G-033.
- Set the maximum number of TEC set points to five as well as changed default values of some of them.
- Changed some default factory settings for sensor control register of the Goldeye G-033.
- Changed some default values in the TEC and sensor controller.
- Changed default values for some sensor features and TEC (thermo-electric cooling) features.
- Changed the sensor gain selection scheme as follows: LowGain-> Gain0- 0, HighGain-> Gain1- 1, Gain2- 2 (the latter only for G-033).

Removed feature

Removed some not implemented features from XML regarding references to Line3, Line4 and PTP in `EventSelector`, `EventID` and `EventData`.

Resolved issues

- Fixed issue related to NI attribute Check and NI MAX failed since implementation of background correction.
- Fixed issue regarding missing initialization of registry settings for new keys in user sets, which did not exist in registry before (for example, due to a firmware update). The error occurred if the stored active user set is not the factory set.
- Fixed issue recently introduced in defect pixel correction which causes the six columns at the left edge not being corrected.
- Fixed issue regarding automatic NUC (non-uniformity correction) dataset selection activates wrong datasets.
- Fixed **critical issue in registry which potentially destroys registry** while repacking.

NOTICE

Damage to the camera calibration

Updating or downgrading to firmware **versions below V02.06.02** can destroy user sets and sensor parameter configuration, independently of the firmware previously installed on the camera.

- Fixed a newly emerged issue in the TEC controller.
- Fixed potential unreliability during internal register access.
- Reduced power consumption of DRAM memory.
- Fixed issue related to ROI-settings on Snake sensor, leading to corrupted images, a crash, or dropped frames.
- Small issue fix in the TEC controller (micro controller).
- Fixed issue regarding reading the command `SensorTemperatureSetpointActivate`.
- Fixed issue with dropped frames, packet errors, Vimba Viewer crash when changing OffsetX or OffsetY during acquisition.

FW 02.04.04

Release date: 2014-Oct-30

Supported models

Camera family	Model
Goldeye G	G-032 TEC1, G-032 Cool TEC2

Table 19: Supported models

New model

Goldeye G-032 Cool TEC2

New or changed features

- Added new features to XML file: `NUCDatasetActiveDescription`
- Added new features to XML file: `NUCDatasetActiveExposureTime`
- Added new features to XML file: `NUCDatasetActiveGain`
- Added new features to XML file: `NUCDatasetActiveTemperature`
- Added new features to XML file: `DPCDatasetActiveDescription`
- Added unit attribute to XML features: `AcquisitionFrameRate`
- Added unit attribute to XML features: `AcquisitionframeRateLimit`
- Added unit attribute to XML features: `ExposureTime`
- Added unit attribute to XML features: `TriggerDelay`
- Added unit attribute to XML features: `DeviceLinkThroughputLimit`
- Added unit attribute to XML features: `DeviceRelativeHumidity`
- Added unit attribute to XML features: `DeviceStreamChannelPacketSize`
- Added unit attribute to XML features: `DeviceTemperature`
- Added unit attribute to XML features: `SensorCoolingPower`
- Added unit attribute to XML features: `SensorTemperatureSetpointValue`
- Added unit attribute to XML features: `StrobeDuration`
- Added unit attribute to XML features: `FileAccessLength`
- Added unit attribute to XML features: `FileAccessOffset`
- Added unit attribute to XML features: `FileSize`
- Added unit attribute to XML features: `GevHeartbeatTimeout`
- Added unit attribute to XML features: `ImageSize`
- Added unit attribute to XML features: `PayloadSize`
- Added invisible `GevHeartbeatTimeout` (deprecated) feature.
- Added `DeviceLinkHeartbeatTimeout` feature.
- Added automatic dataset selection to non-uniformity correction.
- Added `FrameRateLimit` feature to `Acquisition`/`Trigger` category.
- Very-first working AOI functionality.
- Minimized frame timing overhead.
- New features added to control/display the ROI limitations with respect to FPA physical pixel coordinates: DeviceConrol->SensorBoadSettings->GoodArea* (RW); ImageFormatControl->SensorOffset* (RO);
- Reworked humidity sensor control.
- Minimum exposure time is set to 6 µs.
- The set value of the exposure time, before being applied to the sensor, is shortened by the FPA's minimum exposure time.
- Added further following SFNC features
  - `GevCurrentIPAddress`
  - `GevCurrentSubnetMask`
  - `GevCurrentDefaultGateway`
  - `GevPersistentIPAddress`
  - `GevPersistentSubnetMask`
  - `GevPersistentDefaultGateway`
  - `GetCurrentIPConfigurationLLA`
  - `GevCurrentIPConfigurationDHCP`

  - `GevCurrentIPConfigurationPersistensIP`
  - `GevMACAddress`
- Optimized the timing generator and trigger: now the exposure time > 1 µs is possible (plus the FPA's internal minimum exposure of approx. 5.4 µs).

Resolved issues

- Fixed REGKEY_SC_AFE_SHXLOC.
- Minor corrections / unifications in description and tool-tip texts.
- Corrected `GevCurrentIPConfigurationLLA` feature name (was `GetCurrentIPConfigurationLLA`).
- Corrected feature name `GevCurrentIPConfigurationPersistentIP`.
- Fixed issue of blinking pixels at high gain and exposure time near to the frame interval.
- Workaround for Issue: Frame out stops for a few seconds if exposure time is set below 120 µs.
- Fixed feature category for PvAPI: ROI-> /ImageFormat, TotalBytesPerFrame-> /ImageFormat.

FW 02.02.02

Release date: 2014-Jul-22

Supported models

Camera family	Model
Goldeye G	G-032 TEC1

Table 20: Supported models

New model

Goldeye G-032 TEC1

New or changed features

- Moved and renamed features to match SFNC 2.1 using Vimba and other GigEVision-based software. Structure in PvAPI maintained.
- Moved sensor parameters from Sensorboard EEPROM to a registry that accesses the control board EEPROM.
- Introduced the following features:
  - `DeviceSFNCFirmwareVersionMajor,`
  - `DeviceSFNCFirmwareVersionMinor,`
  - `DeviceSFNCFirmwareVersionSubMinor.`
- Introduced BasePart-Id 262146 (0x0040002) (cooled firmware version).
- Reactivated `DeviceStatus` category (temperature and humidity inquiry sensor readout).
- Added non-uniformity correction and defect-pixel correction, user sets are working.
- 4-channel mode, 100 fps, TEC +20 °C, minimum exposure 120 µs.

Resolved issue

Fixed problem with Vimba (Buffer too small). Number of lines transmitted was miscalculated.

Disclaimer

For the latest version of this document, please visit the Allied Vision documentation website.