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Linea GigE Firmware

Firmware build for 2K, 4K, & 8K cameras

Linea 2K & 4K — Version 1.01: [Linea_Mono_2K_4K_STD-Firmware_1CA16.34](#)

Linea 8K — Version 1.01: [Linea_Mono_8K_STD-Firmware_2CA16.13](#)

Part Numbers and Software Requirements

This table covers the Linea GigE models summarized below.

Camera	Resolution	Lens Mount (treaded)	Product Number
Linea GigE 2K	2048 x 1	M42 x 1	LA-GM-02K08A-00-R
Linea GigE 4k	4096 x 1	M42 x 1	LA-GM-04K08A-00-R
Linea GigE 8k	8192 x 1	M72 x 0.75	LA-GM-08K08A-00-R

Teledyne DALSA Software Platform	
Sapera LT version 8.30 and later includes the Sapera Network Imaging Package and GigE Vision Imaging Driver.	Available for download http://www.teledynedalsa.com/mv/
GigE Vision Turbo Drive Technology Module — Included with the latest Sapera LT. Improved proprietary package allows the Linea GigE to sustain higher data transfers to the host system.	
New or alternative Linea GigE Firmware Designs	
Sapera Processing Imaging Development Library (available for Windows or Linux - sold separately):	Via web download
	Contact Teledyne DALSA Sales

Third Party GigE Vision Software Platform Requirements	
Support of GenICam GenApi version 2.3	General acquisition and control. File access: firmware, FFC, configuration data, upload & download.
Support of GenICam XML schema version 1.1	
Support of GigE Vision 1.2	Includes end-of-line Metadata
GenICam™ support — XML camera description file	Embedded within Linea GigE

Firmware Features Overview for all Models

- GigE Vision 1.2 compliant
- Supports connection to the host computer NIC through a GigE network switch
- GigE Vision Turbo Drive Technology Module
- 8 bit or 12 bit output
- High line rates
- 2 general purpose inputs with programmable threshold
- 2 bidirectional I/O
- 2 general purpose outputs
- Counter, Timer, and Events available to support imaging applications
- Native Trigger-to-Image Reliability design
- Visual status LEDs on camera back plate
- Supported by Sapera™ LT software libraries
- Support for end-of-line Metadata
- Digital binning for increased sensitivity
- Multiple real-time Flat Field processing available with image cycling (i.e. shading corrections)
- Supports cycling multiple exposure times for sequential images along with other parameters
- 1µs internal timer or external events can timestamp images
- Provides 4 User Settings sets to store and recall camera configurations

Linea 2K & 4K Firmware Builds

Firmware 1.01 Build 34

- Enable Software Frame Triggering support.
- Increase the encoder multiplier up to a max of 256.
- Line rate can now be changed while grabbing images. The camera will pause grabbing, switch linerate and then resume quickly. However, some lines will be lost during the switch (typical < 10ms).
- Fix CCF corruption for cycling parameters. All cycling properties are now saved correctly in the CCF file.

Firmware 1.01 Build 30

- Turbo mode enabled for 12-bit mono. Note: Last line of image is sometimes corrupted with current Sopera 8.12 release. An updated Sopera filter driver will be released to resolve this.
- Frame rate drops with vertical binning enabled.
- Allow binning averaging in vertical mode only. Rename to match SFNC
- When Rotary B encoder is disabled, allow only "Motion" output mode.
- Workaround for Camera disconnect issue.
- Fix CCF features not being saved correctly.
- Update cycling increment to allow edge detection control (Rising, Falling, Both).

Firmware 1.01 Build 23

- FPGA rev#d5 for 2K/4K to fix 6-bit mismatch problem corrected.
- Update FPGA: Fixed sensor sync error which causes bad images.
- Hide turbo mode for 12-bit Pixel Format
- Hide turbo mode for 12-bit Packed Pixel Format

Firmware 1.01 Build 21

- Allow minimum gain as 0.125 for standard 2K/4K mono.

Firmware 1.01 Build 20

- Update FPGA: Fixed sensor sync error which causes bad images.

Firmware 1.01 Build 19 (feature merge with 8K model)

- FPGA update to rev#c1
- Add extra metadata fields (FrameCounter, CameraID)
- Add BinningAverageMode feature
- Extend line debounce to ~65ms
- Add NegativeImage mode
- Add deviceManufacturerPartNumber feature

- Make sensor image pattern available in configuration load
- Adjust tests (use better timer/margin, etc...)

Firmware 1.00 Build 14

- FPGA up rev#A2 to fix horizontal defect in dark image
- Rework adding 7DN in 8bit mode for dark offset

Firmware 1.00 Build 13 (initial build)

- Improved tooltips
- Green Status LED – light would go off inadvertently – issue corrected
- Lost Frame Event - will now be generated
- Improved Gain setting granularity from 0.125 to 0.015

Linea 8K Firmware Builds

Firmware 1.01 Build 13

- Enable Software Frame Triggering support.
- Increase the encoder multiplier up to a max of 256.
- Line rate can now be changed while grabbing images. The camera will pause grabbing, switch linerate and then resume quickly. However, some lines will be lost during the switch (typical < 10ms).
- Fix CCF corruption for cycling parameters. All cycling properties are now saved correctly in the CCF file.

Firmware 1.01 Build 10

- Turbo mode enabled for 12-bit mono. Note: Last line of image is sometimes corrupted with current Sopera 8.12 release. An updated Sopera filter driver will be released to resolve this.
- Frame rate drops with vertical binning enabled.
- Allow binning averaging in vertical mode only. Rename to match SFNC
- When Rotary B encoder is disabled, allow only "Motion" output mode.
- Workaround for Camera disconnect issue.
- Fix CCF features not being saved correctly.
- Update cycling increment to allow edge detection control (Rising, Falling, Both).

Firmware 1.00 Build 3

- Update FPGA: Fixed 6-bit mismatch problem.
- Update FPGA: Fixed sensor sync error which causes bad images.
- Hide turbo mode for 12-bit Pixel Format due to the issue recorded in RT3#:30285.
- Hide turbo mode for 12-bit Packed Pixel Format.

Firmware 1.00 Build 2

- Update FPGA: modified sensor deserialization delay to fix the issue found during thermal chamber test.
- Update FPGA: changed feedthrough drift threshold value.

Firmware 1.00 Build 1

- New features: frame count and unique identifier in metadata, deviceManufacturerPartNumber, binning averaging, invert image, increased de-bouncing period.

Uploading Firmware via Teledyne DALSA CamExpert

- Download new firmware to the computer with Sopera LT package
- Open the CamExpert application.
- Click on the File Access Category, then click the "Setting..." button to show the file selection menu.
- The File Type drop menu default is Device Firmware. Do not change this.
- The File Selector drop menu default is Firmware. Do not change this.
- Click the Browse button to open a typical Windows Explorer window and select the new firmware file.
- Click the Upload button to execute the file transfer to the Linea. Follow any instructions as shown.

Firmware Updates via Third Party Software

Refer to the file access tool and instructions of your third party GigE Vision Software Platform.