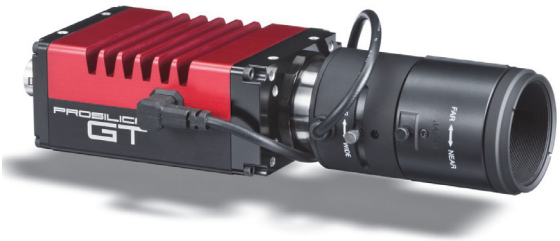
Allied Vision Prosilica GT



Technical Manual

GigE Vision Cameras

V2.3.0

20 March 2015

Allied Vision Technologies GmbH
Taschenweg 2a
D-07646 Stadtroda, Germany

Allied Vision

Legal notice

For customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interferences will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Use a different line outlet for the receiver.
- Consult a radio or TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment. The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart A of Part 15 of FCC Rules.

For customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in the Radio Interference Regulations.

Pour utilisateurs au Canada

Cet appareil est conforme aux normes classe A pour bruits radioélectriques, spécifiées dans le Règlement sur le brouillage radioélectrique.

Life support applications

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Allied Vision Technologies customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Allied Vision Technologies for any damages resulting from such improper use or sale.

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The information provided by Allied Vision Technologies is supplied without any guarantees or warranty whatsoever, be it specific or implicit. Also, excluded are all implicit warranties concerning the negotiability, the suitability for specific applications or the non-breaking of laws and patents. Even if we assume that the information supplied to us is accurate, errors and inaccuracy may still occur.

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Introduction

This **Prosilica GT Technical Manual** describes in depth the technical specifications of this camera family including dimensions, feature overview, I/O definition, trigger timing waveforms, and frame rate performance.

For information on software installation read the **GigE Installation Manual**. For detailed information on camera features and controls specific to the Prosilica GT refer to the **GigE Features Reference** and **GigE Camera and Driver Attributes** documents.

www

Prosilica GT literature:
http://www.alliedvision.com/en/support/technical-documentation/prosilica-gt-documentation

Document history

Version	Date	Remarks
V2.0.0	2011-Dec-12	New Manual - RELEASE status
V2.0.1	2012-Mar-08	• Added spectral response curves • Added GT1910, GT1920, GT2300, GT2750 frame rate charts
V2.0.2	2012-May-31	• Added GT3300, GT1660
V2.0.3	2012- Jun-21	• Added DC Iris information
V2.0.4	2012-Sep-21	• Added GT2000, GT2050, GT6600 • Link added to RS-232 application note • Added lens control port wiring • Renamed Camera IO signals
V2.0.5	2013-Jan-14	• Added GT3400, GT4100, GT4905, GT4907 • Updated the circuits diagrams in the **Camera trigger** section: Figure 50, Figure 52, Figure 53, Figure 54 • Updated the Prosilica GT trigger circuit values: Table 21 • Removed the Supported P-Iris section • Updated the **Exposure control** values
V2.0.6	2013-Feb-12	• Added Status LEDs section • Updated the RoHS directive
to be continued on next page		

Table 1: Document history

Version	Date	Remarks
continued from last page		
V2.0.7	2013-May-16	• Updated the bit depth and exposure control camera specifications in the Specifications chapter • Updated pixel format naming according to the GenICam naming convention • Corrected body dimensions and mass for GT3400 on page 40 • Corrected the spectral plots for GT3400 on page 41 • Added VIMBA SDK link in Additional references section • Added frame rate vs. height graphs for Prosilica GT3400, Prosilica GT4905, Prosilica GT4907 • Updated frame rate vs. height graphs in Resolution and ROI frame rates chapter • Updated AVT recommended cabling to Category 6 or higher in Gigabit Ethernet port section
V2.0.8	2013-Jul-05	• Added contact information for Allied Vision Technologies (Shanghai) Co. Ltd. • Updated spectral plots for GT1910 on page 23 • Updated the links to **AVT GigE Installation Manual** • Added links to **AVT GigE Camera and Driver Features** document
V2.0.9	2013-Sep-16	• Updated chapter Camera dimensions on page 50 • Updated Lens control section page 66 • Updated Color cameras with IR filter section on page 12 • Updated the specifications for GT2000C and GT2050C on page 28 and 30 • Added a note on the locking screw cables on page 61 • Added optical flange focal distance and maximum lens protrusion information for C-/F-Mount on page 59 • Added 1 inch lens format recommendation for Prosilica GT2000 cameras on page 28 • Added temperature monitoring information in the Specifications chapter • Updated specifications for Prosilica GT2000/2000C/2000NIR and Prosilica GT2050/2050C/2050NIR cameras • Added frame rate tables in chapter Resolution and ROI frame rates on page 74 • Added chapter Appendix on page 96
V2.1.0	2013-Oct-28	• Updated table 20 on page 48 • Added chapter Description of the data path on page 93 • Added section Adjustment of F-Mount on page 58
to be continued on next page		

Table 1: Document history

Version	Date	Remarks
		continued from last page
V2.1.1	2014-Jul-14	• Updated frame rate specification for Prosilica GT2000/2000C/2000NIR, Prosilica GT2050/2050C/2050NIR, Prosilica GT3400/3400C, and Prosilica GT4905/4905C • Added defect mask note in Block diagram of Prosilica GT monochrome cameras with CCD sensors and Block diagram of Prosilica GT color cameras with CCD sensors • Corrected the sensor and cell size for Prosilica GT6600/6600C • Added a note on binning in Block diagram of Prosilica GT color cameras with CCD sensors • Added link to the technical drawing for GT large format camera with M42 / M58-Mount on page 54 • Updated section Sensor position accuracy of Prosilica GT standard and extended cameras • Updated minimum exposure time for Prosilica GT2000/2000C/2000NIR and Prosilica GT2050/2050C/2050NIR • Updated specifications for Prosilica GT4905/4905C • Updated the power consumption specification in the Specifications chapter • Replaced the optical flange focal distance section with the following sections: – C-Mount flange focal distance – F-Mount flange focal distance • Updated information on Prosilica GT Out 3 / Out 4 trigger circuit on page 65 and in section Output: Opto-isolated internal circuit • Updated temperature monitoring information in the Specifications chapter • Preliminary camera GT4100 removed from the document until samples are available • Updated Camera smart features section • Replaced **A/D** and **bit depth** with **Max image bit depth** in the Specifications chapter • Added M42-Mount technical drawing links for GT standard and extended cameras on page 50 and 52, respectively
V2.2.0	2015-Mar-11	• Updated Allied Vision logo • Changed AVT and Allied Vision Technologies references to Allied Vision • Updated Additional references section • Added new camera model GT1930L – Prosilica GT1930L/1930LC specifications – Dimensions of GT1930L with EF-Mount (Planarity adjustable) – Adjustment of EF-Mount information – Description of data path for GT1930L on page 93 and 95 – EF lens control section on page 68 – Frame rate vs ROI height graph for Prosilica GT1930L
		to be continued on next page

Table 1: Document history

Version	Date	Remarks
		continued from last page
V2.2.0 [continued]	2015-Mar-11 [continued]	• Added GT3300 with OnSemi KAI-08051 sensor information in table 15, figure 25, and figure 26 • Renamed Truesense references to OnSemi • Updated Table 23: Lens control port wiring • Updated temperature monitoring specification for Prosilica GT2300/ 2300C • Updated datapath diagrams for color GT cameras in Description of the data path section • Updated the defect masking information for the following: – Prosilica GT monochrome cameras – Prosilica GT color cameras
V2.3.0	2015-Mar-20	• Replaced old links with new Allied Vision website links • Changed file name from 'GigE Camera and Driver Features' to 'GigE Features Reference' • Changed chapter name from 'Description of data path' to 'Camera data path'

Table 1: Document history

Manual conventions

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

Styles

Style	Function	Example
Bold	Programs, inputs, or highlighting important information	**bold**
Courier	Code listings etc.	Input
Upper case	Register	REGISTER
Italics	Modes, fields	*Mode*
Parentheses and/or blue	Links	(Link)

Table 2: Styles

Symbols

Note

This symbol highlights important information.

Caution

This symbol highlights important instructions. You have to follow these instructions to avoid malfunctions.

www

This symbol highlights URLs for further information. The URL itself is shown in blue.

Example:

http://www.alliedvision.com

Precautions

Caution

Do not disassemble the camera housing. Warranty is void if camera has been disassembled.

This camera contains sensitive internal components.

Caution

Keep shipping material.

Poor packaging of the product may cause damage during shipping.

Caution

Verify all external connections.

Verify all external connections in terms of voltage levels, power requirements, voltage polarity, and signal integrity prior to powering the device.

Caution

Cleaning.

This product can be damaged by some volatile cleaning agents. Avoid cleaning the image sensor unless absolutely necessary. Please see instructions on optics cleaning in this document.

Caution **Do not exceed environmental specifications.**

See environmental specifications limits in the Specifications section of this document. Special care must be taken to maintain a reasonable operating temperature. If the camera is operated in temperatures higher than the specified range, the camera should be mounted on a heat sink.

For more information on camera body temperature:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/Prosilica_GT_Camera_Body_Temperature.pdf

Camera cleaning

Caution Allied Vision does not warranty against any physical damage to the sensor/filter/protection glass or lenses. **Use utmost care when cleaning optical components**.

Caution **Do not touch any optics with fingers. Oil from fingers can damage fragile optical coatings.**

Identifying debris

Debris on the image sensor or optical components appears as a darkened area or smudge on a camera image. Do not confuse this with a pixel defect which appears as a distinct point.

Locating debris

First determine whether the debris is on the sensor glass, IR filter (if used), or lens. The farther away the debris is from the sensor, the blurrier the debris appears on a camera image.

Stream a live image from the camera using a uniform target, such as a piece of paper. To determine if the debris is on the camera lens, rotate the lens independent of the camera. If the spot moves, the debris is on the lens. Otherwise, the debris is on the IR filter (if used) or sensor glass.

Color cameras with IR filter

Prosilica GT color cameras are equipped with an IR filter. With no lens or lens cap on a camera, the IR filter is exposed and debris can accumulate on it. This is the most probable location for debris. It should not be necessary to remove the IR filter for cleaning. Clean the outside of the IR filter glass using the techniques explained in the next section. If it is determined that the debris is on the inside surface of the filter glass, or on the sensor glass, IR filter removal is necessary.

Note

- A pin spanner wrench (Allied Vision P/N: E9020001) suitable for IR filter removal is available for purchase from Allied Vision for all Prosilica GT cameras except Prosilica GT large format cameras.
- **DO NOT attempt to remove the camera IR filter for** Prosilica GT large format cameras. Please contact support@alliedvision.com for assistance.

Cleaning with air

Blow directly on the contaminated surface with moderate pressure, clean compressed air.

Caution

Do not exceed 6 bar (90 psi). If using canned air, approximately ~ 4.8 bar (70 psi) when full, do not shake or tilt the can, as extreme changes in temperature due to sudden cold air can crack the optic glass.

View a live image with the camera after blowing. If debris is still present, repeat the process until it is determined that the particulate cannot be dislodged. If this is the case, proceed to the contact cleaning technique.

Contact cleaning

Only use this method if the above air cleaning method does not sufficiently clean the surface. Use 99% pure isopropyl alcohol and clean cotton swabs. Wet the swab in the alcohol. Quickly wipe the optics in a single stroke. Prolonged exposure of alcohol on the swab can cause the swab glue to loosen and transfer to the optic glass. Do not reuse the same swab. Repeat this process until the debris is removed. If this process fails to remove the debris, contact Allied Vision.

Conformity

Allied Vision Technologies declares under its sole responsibility that all standard cameras of the **Prosilica GT** family to which this declaration relates are in conformity with the following standard(s) or other normative document(s):

- CE, following the provisions of 2004/108/EG directive
  (**Prosilica GT** board level cameras do not have CE)
- FCC Part 15 Class A
  (**Prosilica GT** board level cameras: prepared for FCC Class B)
- RoHS (2011/65/EU)

CE

We declare, under our sole responsibility, that the previously described **Prosilica GT** cameras conform to the directives of the CE.

FC

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Any modifications not expressly approved in this manual may void your authority to operate this equipment.

Specifications

Prosilica GT1290/1290C

Feature	Specification
Resolution	1280 x 960
Sensor	Sony ICX445ALA, ICX445AQA for color (with EXview HAD microlens)
Type	CCD Progressive
Sensor size	Type 1/3
Cell size	3.75 µm
Lens mount	C (adjustable) / CS
Max frame rate at full resolution	33.3 fps
Max image bit depth	Monochrome cameras: 14 bit; Color cameras: 12 bit
On-board FIFO	128 MB, 53 frames at full resolution
Mono formats	GT1290: Mono8, Mono12Packed, Mono12, Mono14; GT1290C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	12 µs to 77.3 s; 1 µs increments
Gain control	0 to 33 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	2.9 W @ 12 VDC, 3.5 W PoE
Trigger latency	2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	211 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C

Table 3: Prosilica GT1290/1290C camera specifications

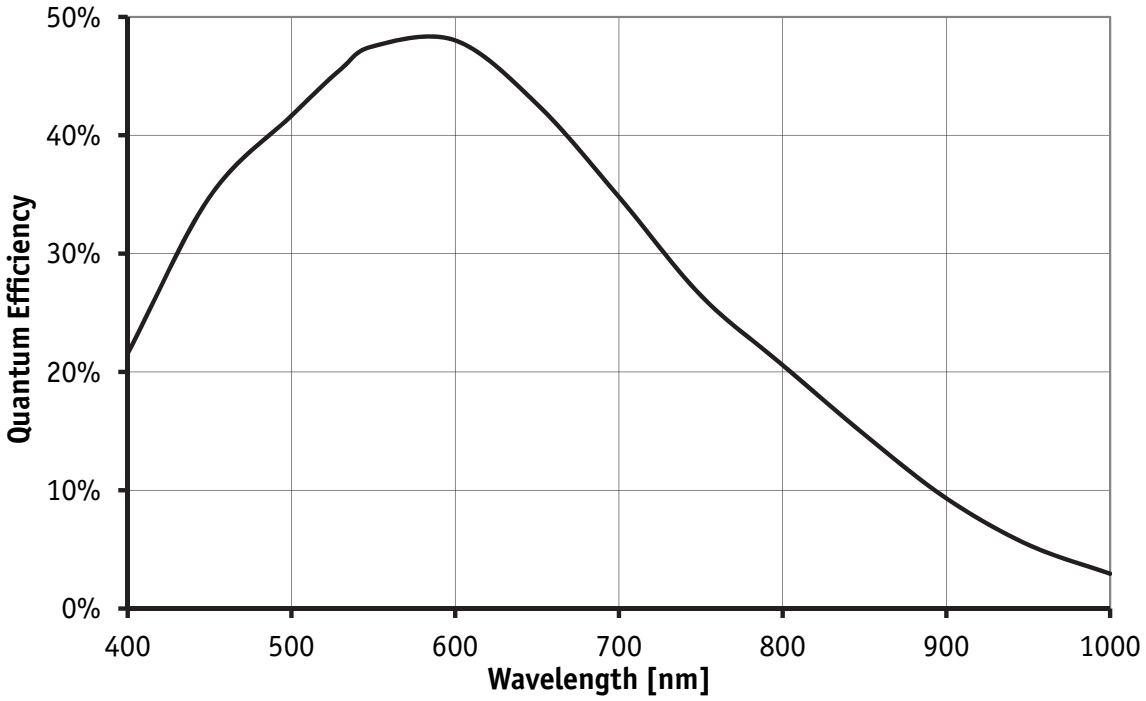


Figure 1: Prosilica GT1290 monochrome spectral response

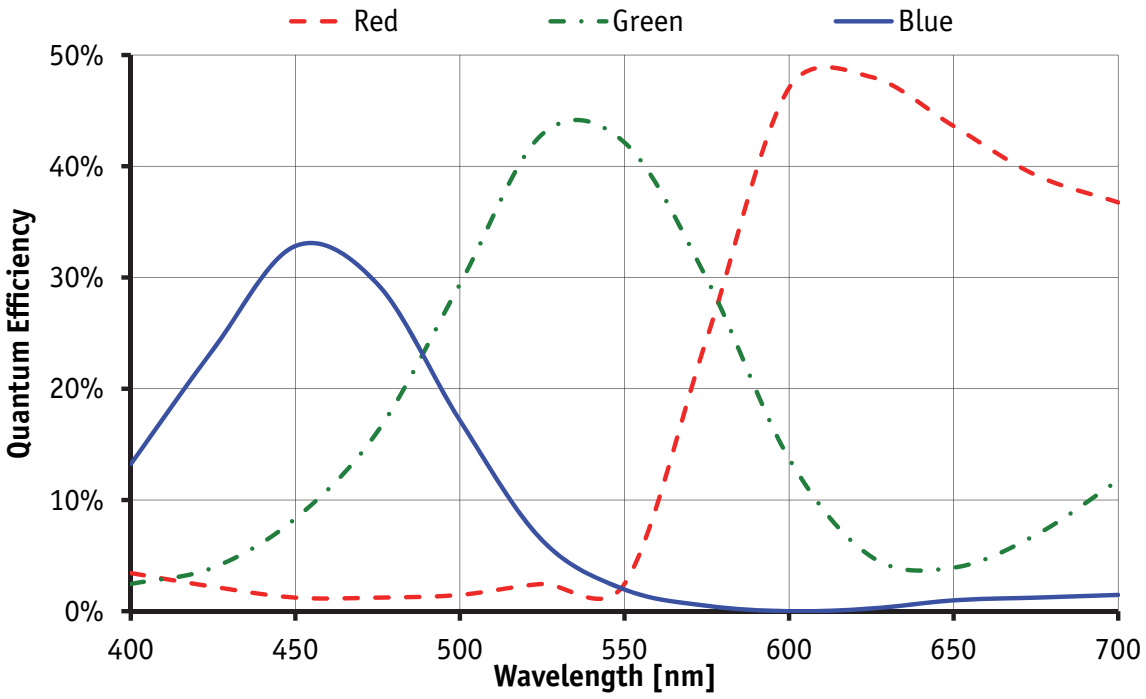


Figure 2: Prosilica GT1290C color spectral response (without IR cut filter)

Prosilica GT1380/1380C

Feature	Specification
Resolution	1360 x 1024
Sensor	Sony ICX285AL, ICX285AQ for color (with EXview HAD microlens)
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	6.45 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	30.5 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT1380: Mono8, Mono12Packed, Mono12, Mono14 GT1380C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	10 µs to 77.3 s; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.4 W @ 12 VDC, 4.2 W PoE
Trigger latency	2.2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	211 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C

Table 4: Prosilica GT1380/1380C camera specifications

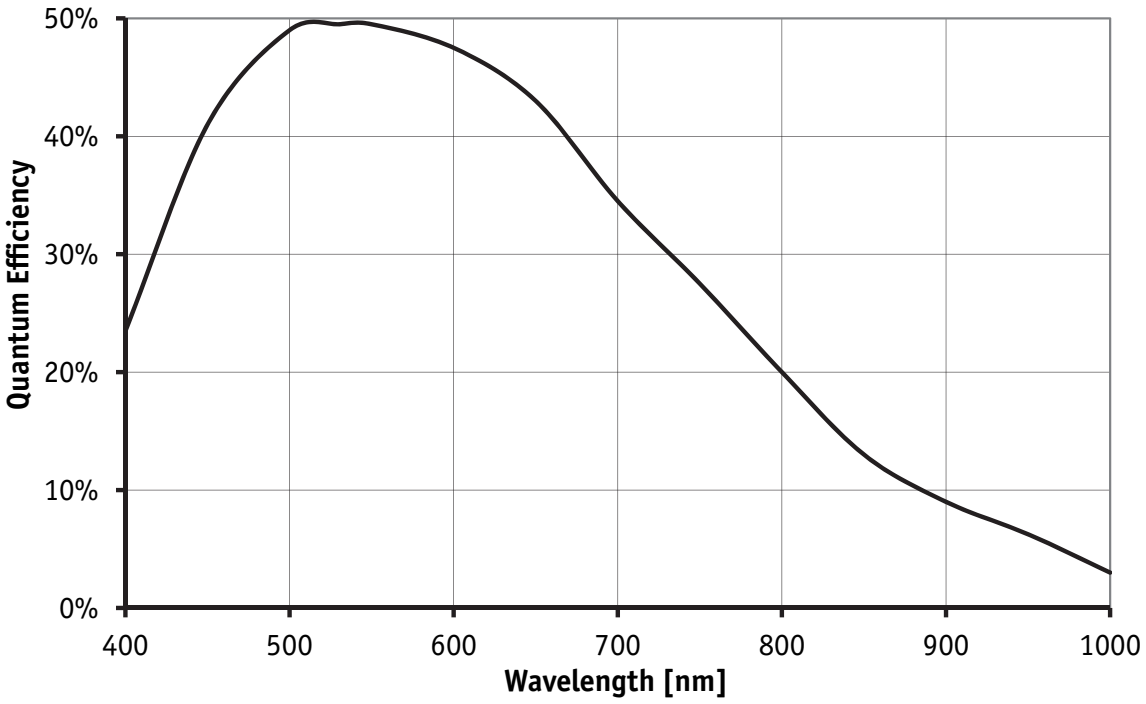


Figure 3: Prosilica GT1380 monochrome spectral response

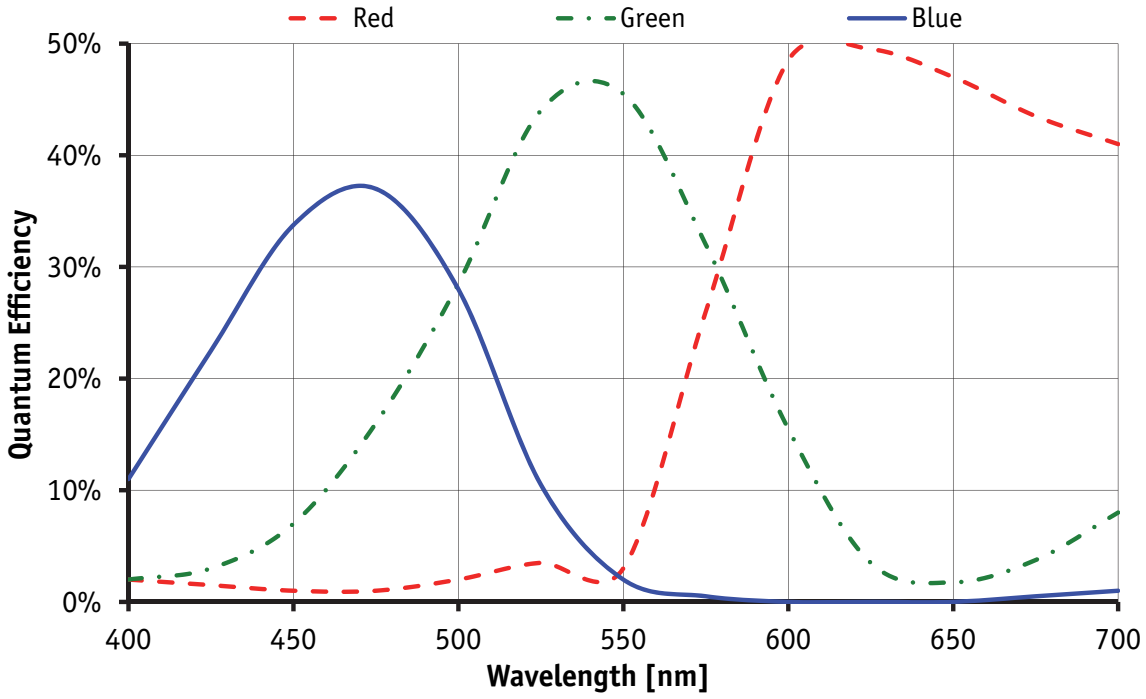


Figure 4: Prosilica GT1380C color spectral response (without IR cut filter)

Prosilica GT1600/1600C

Feature	Specification
Resolution	1620 x 1220
Sensor	Sony ICX274AL, ICX274AQ for color (with EXview HAD microlens)
Type	CCD Progressive
Sensor size	Type 1/1.8
Cell size	4.4 µm
Lens mount	C (adjustable), CS
Max frame rate at full resolution	25.8 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 33 frames at full resolution
Mono formats	GT1600: Mono8, Mono12Packed, Mono12, Mono14 GT1600C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	10 µs to 68.7 s; 1 µs increments
Gain control	0 to 26 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.3 W @ 12 VDC, 4.0 W PoE
Trigger latency	1.4 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	211 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 5: Prosilica GT1600/1600C camera specifications

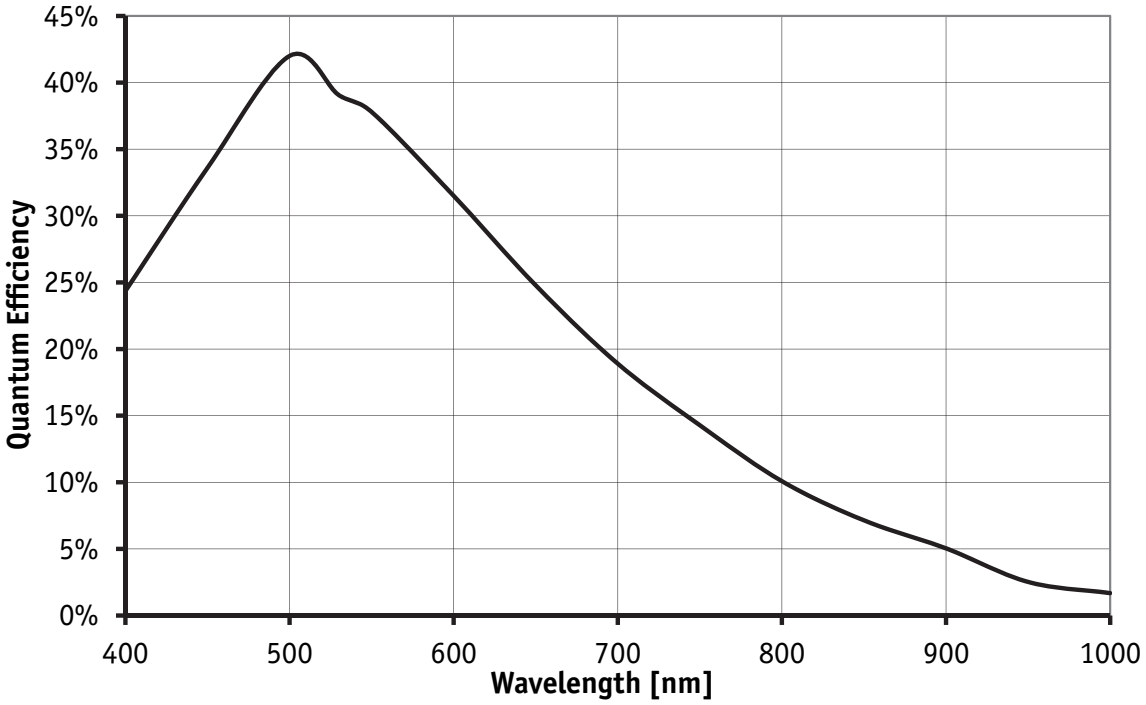


Figure 5: Prosilica GT1600 monochrome spectral response

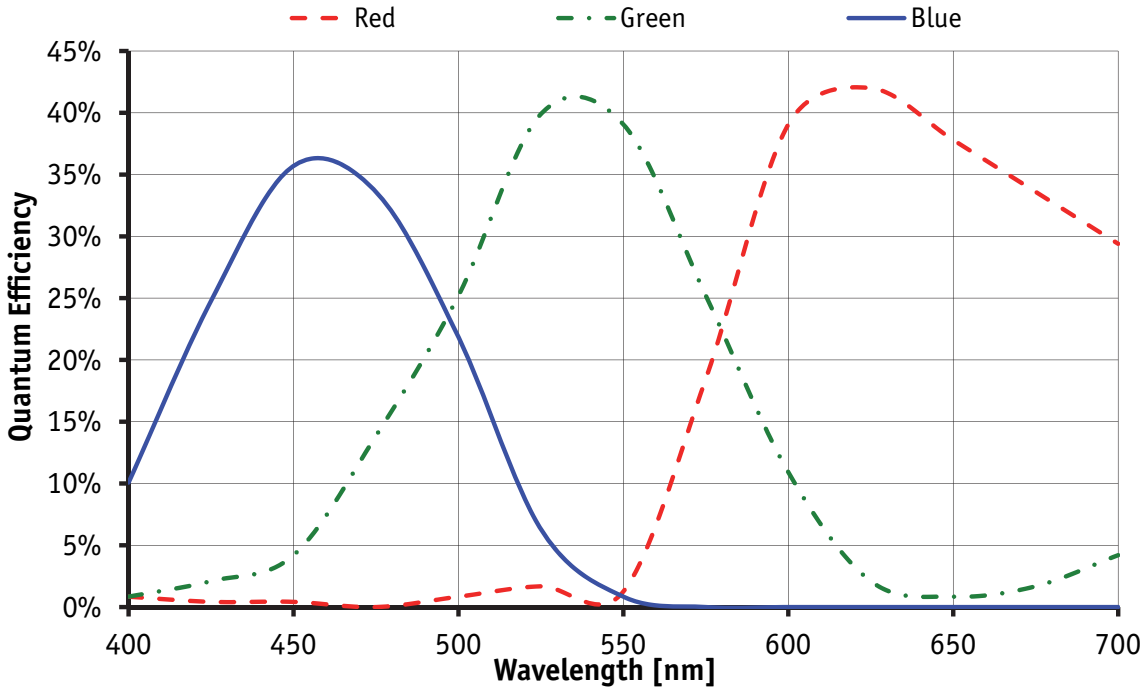


Figure 6: Prosilica GT1600C color spectral response (without IR cut filter)

Prosilica GT1660/1660C

Feature	Specification
Resolution	1600 x 1200
Sensor	OnSemi KAI-02050
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	62 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 68 frames at full resolution
Mono formats	GT1660: Mono8, Mono12Packed, Mono12, Mono14 GT1660C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	5.1 W @ 12 VDC, 6.3 W PoE
Trigger latency	2.1 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	224 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 6: Prosilica GT1660/1660C camera specifications

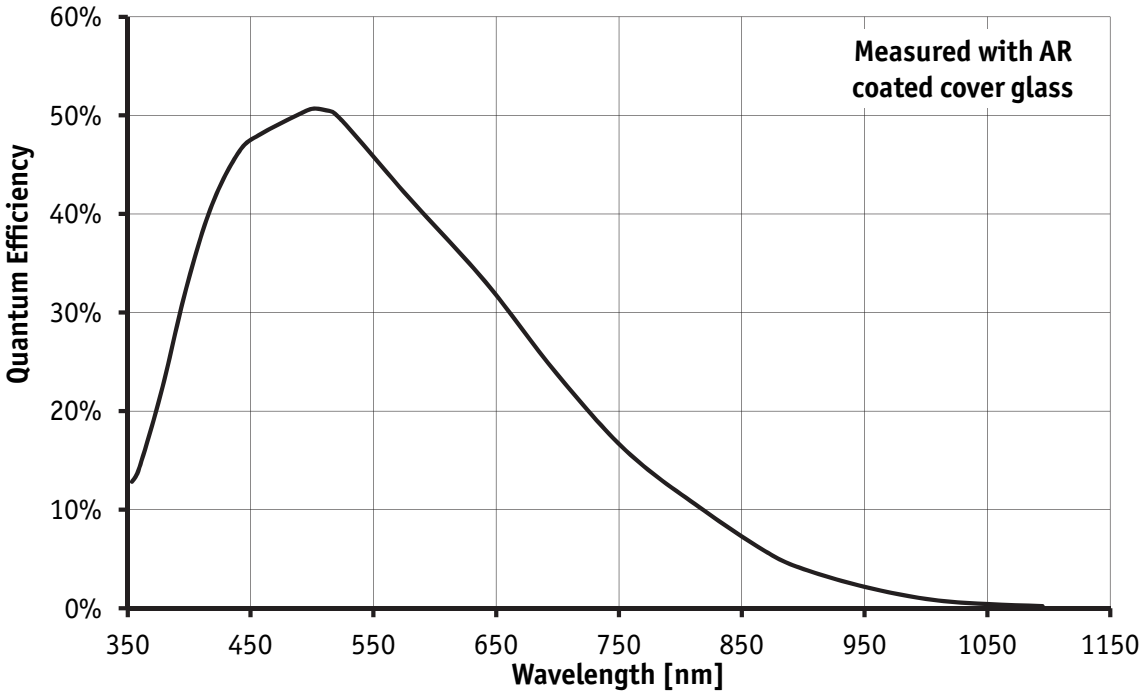


Figure 7: Prosilica GT1660 monochrome spectral response

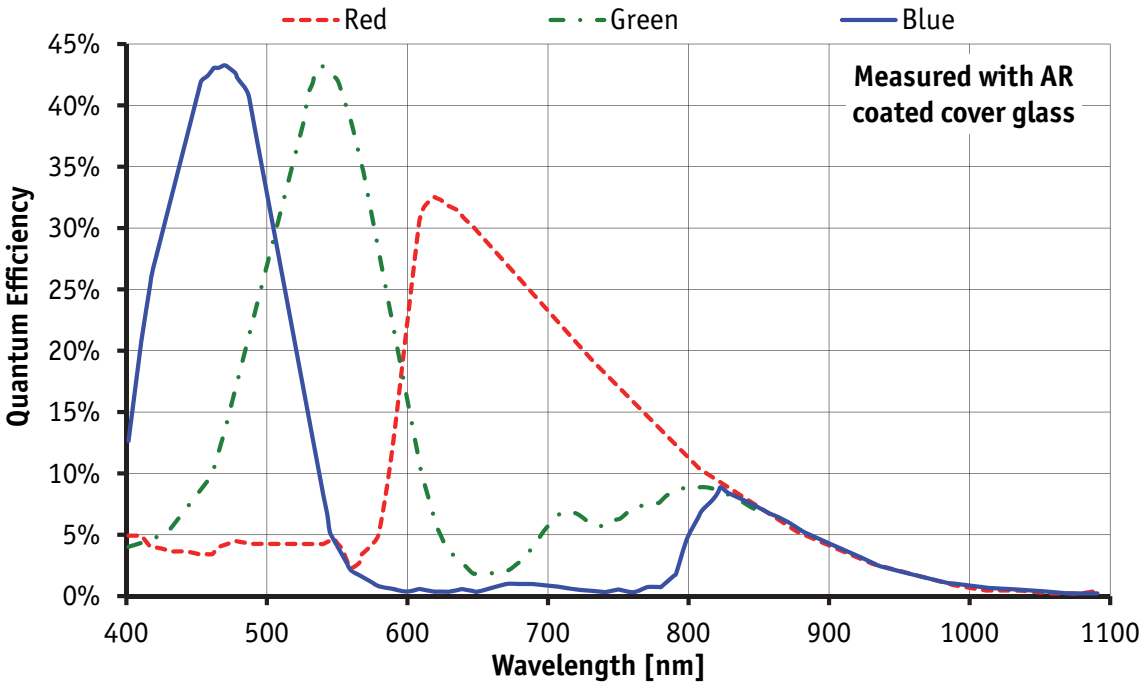


Figure 8: Prosilica GT1660C color spectral response (without IR cut filter)

Prosilica GT1910/1910C

Feature	Specification
Resolution	1920 x 1080
Sensor	OnSemi KAI-02150
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	57.5 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 63 frames at full resolution
Mono formats	GT1910: Mono8, Mono12Packed, Mono12, Mono14 GT1910C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	5.1 W @ 12 VDC, 6.3 W PoE
Trigger latency	2.2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	224 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 7: Prosilica GT1910/1910C camera specifications

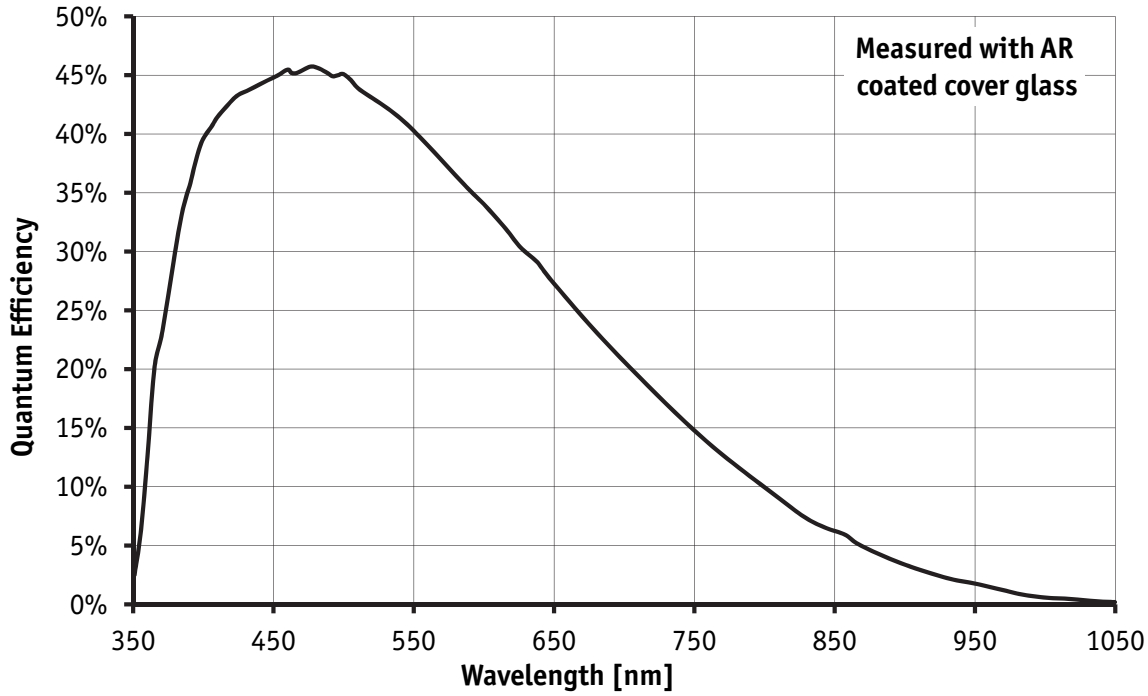


Figure 9: Prosilica GT1910 monochrome spectral response

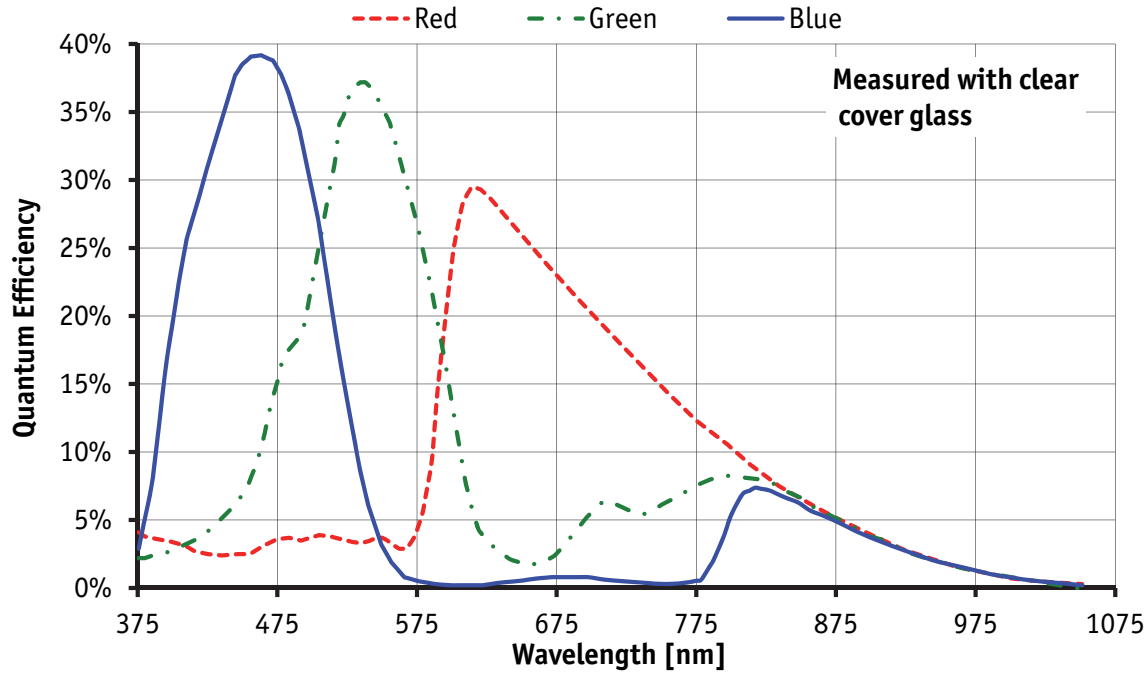


Figure 10: Prosilica GT1910C color spectral response (without IR cut filter)

Prosilica GT1920/1920C

Feature	Specification
Resolution	1936 x 1456
Sensor	Sony ICX674 with EXview HAD II microlens
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	4.54 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	40.7 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT1920: Mono8, Mono12Packed, Mono12, Mono14 GT1920C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 33 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	4.9 W @ 12 VDC, 6.0 W PoE
Trigger latency	2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	224 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 8: Prosilica GT1920/1920C camera specifications

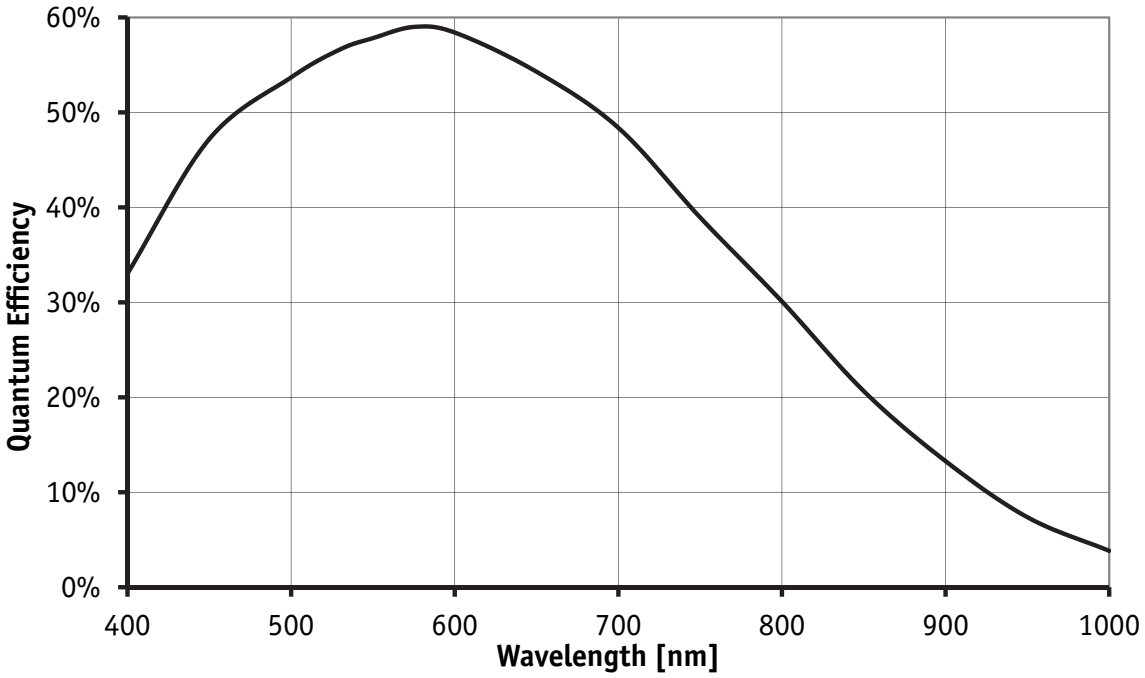


Figure 11: Prosilica GT1920 monochrome spectral response

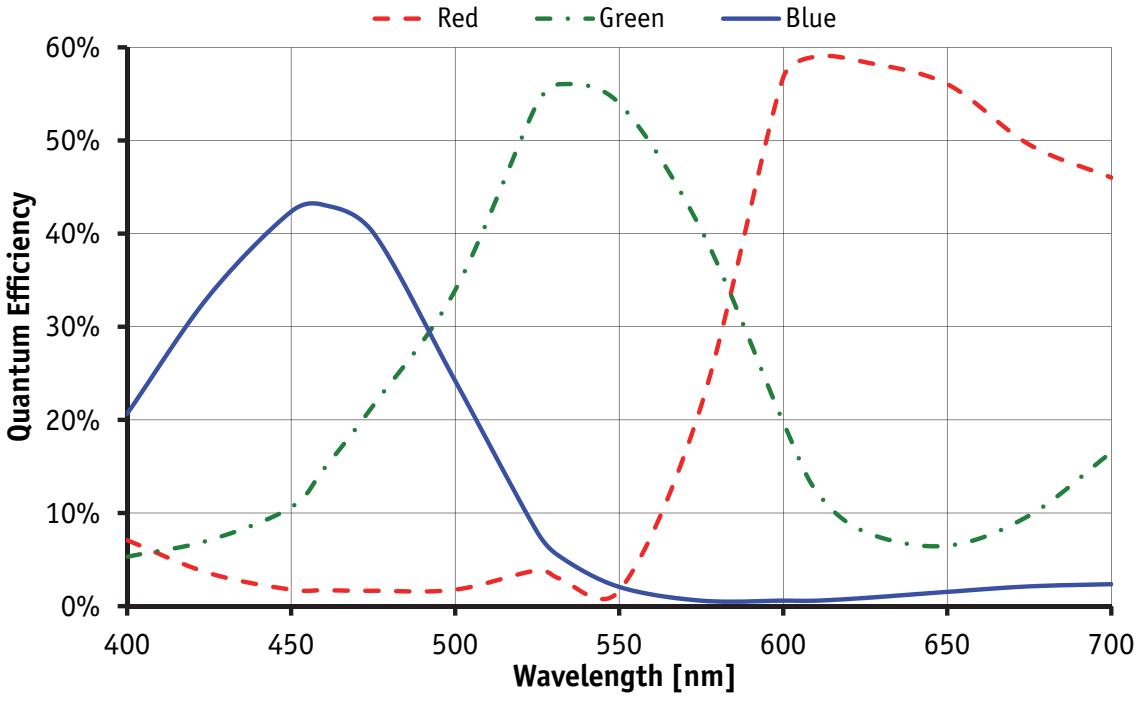


Figure 12: Prosilica GT1920C color spectral response (without IR cut filter)

Prosilica GT1930L/1930LC

Feature	Specification
Resolution	1936 x 1216
Sensor	SONY IMX174LLJ/IMX174LQJ with global shutter
Type	CMOS Progressive
Sensor size	Type 1/1.2
Cell size	5.86 µm
Lens mount	EF (planarity adjustable)
Max frame rate at full resolution	50.7 fps @ 124 MB/s; 55.8 fps burst mode†
Max image bit depth	12 bit
On-board FIFO	128 MB
Mono formats	GT1930L: Mono8, Mono12Packed, Mono12 GT1930LC: Mono8
Color formats	BayerRG8, BayerRG12, RGB8Packed, BGR8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	GT1930L: 28 µs to 88 s GT1930LC: • Mono8, BayerRG8, BayerRG12, YUV411Packed, YUV422Packed: 28 µs to 88 s, 14 µs increments • RGB8Packed, BGR8Packed, YUV444Packed: 56 µs to 88 s, 28 µs increments
Gain control	0.0 to 40.0 dB, 0.1 dB increments
Binning	Horizontal: 1 to 4 pixels; Vertical: 1 to 4 rows
Decimation	Horizontal and Vertical: 1, 2, 4, 8 factor
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.24 W @ 12 VDC, 3.88 W PoE
Trigger latency*	50.1 µs
Trigger jitter*	7.2 µs
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-30 to +75 °C DeviceTemperatureSelector‡ = *Sensor* -30 to +80 °C DeviceTemperatureSelector‡ = *Main* -30 to +70 °C housing temperature (without condensation) -30 to +65 °C ambient temperature (without condensation)
Storage temperature	-40 to +80 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	96 x 66 x 53.3 mm including connectors, w/o tripod and lens
Mass	372 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera. Resolution: 0.031; Accuracy: ±1°C

†See StreamFrameRateConstrain in GigE Features Reference document.

*These values are calculated directly from the microcontroller source. These values are only valid for pixel formats ≤16 bit per pixel.

‡ Selects the site whose temperature is reported. See DeviceStatus in GigE Features Reference document.

Table 9: Prosilica GT1930L/1930LC camera specifications

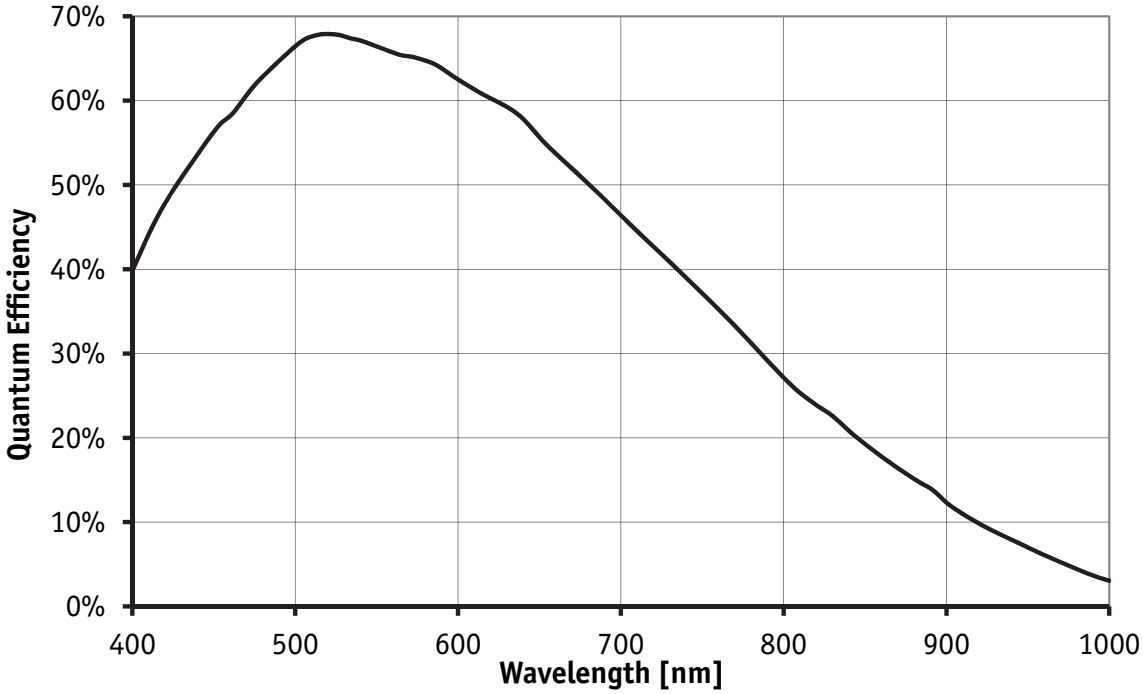


Figure 13: Prosilica GT1930L monochrome spectral response

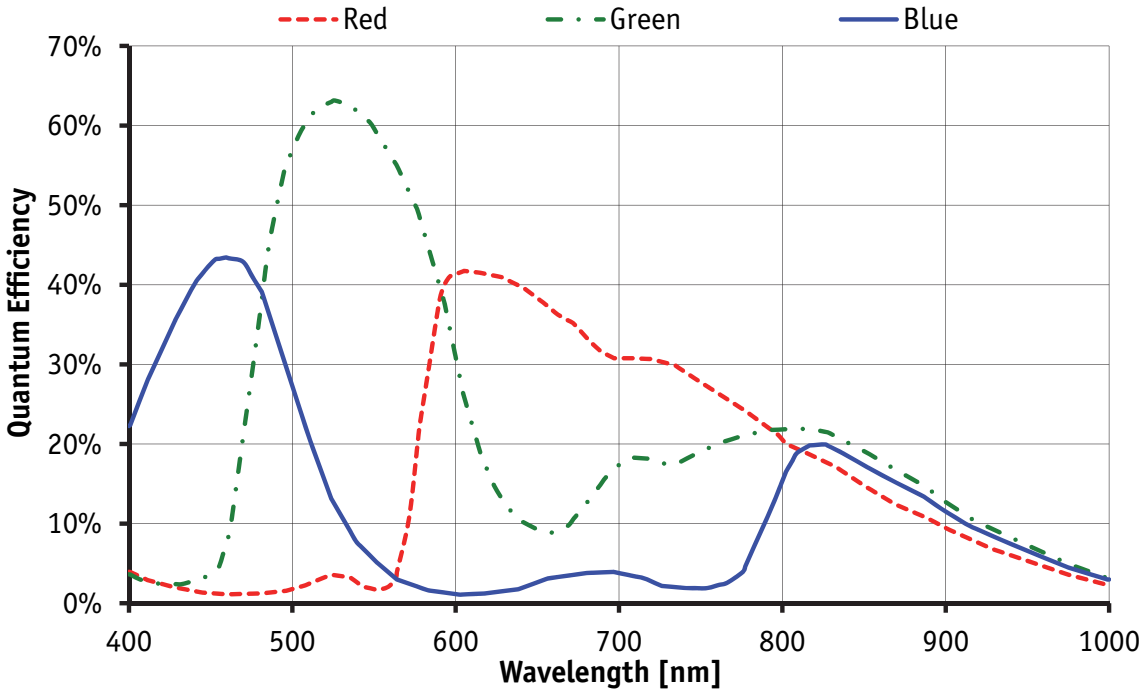


Figure 14: Prosilica GT1930LC color spectral response (without IR cut filter)

Prosilica GT2000/2000C/2000NIR

Feature	Specification
Resolution	2048 x 1088
Sensor	CMOSIS CMV2000
Type	CMOS
Sensor size	Type 2/3
Cell size	5.5 µm
Lens mount / Lens	C (adjustable) / 1 inch format lens recommended
Max frame rate at full resolution	53.7 fps @ 124 MB/s with *GevSCPSPacketSize* = 8228‡; 60.1 burst mode*
Max image bit depth	12 bit
On-board FIFO	128 MB, 29 frames at full resolution
Mono formats	GT2000/GT2000NIR: Mono8, Mono12Packed, Mono12 GT2000C: Mono8
Color formats	BayerGB8, BayerGB12, BayerGB12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed,
Exposure control	18 µs† to 126.2 s; 1 µs increments
Gain control	0 to 26 dB
Horizontal binning	N/A
Vertical binning	N/A
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.4 W @ 12 VDC, 4.2 W PoE
Trigger latency	700 ns
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	210 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera, Resolution: 0.031; Accuracy: ±1°C

‡ Network card with jumbo packets is required. See Hardware Selection for Allied Vision GigE Cameras application note for a list of recommended Ethernet adapters.
*See *StreamFrameRateConstrain* in GigE Features Reference document.
† Camera firmware v1.52.8151 shows minimum exposure values without frame overhead time, i.e., 1 µs. See sensor datasheet for details on frame overhead time. This will be fixed in the next firmware release.

Table 10: Prosilica GT2000/2000C/2000NIR camera specifications

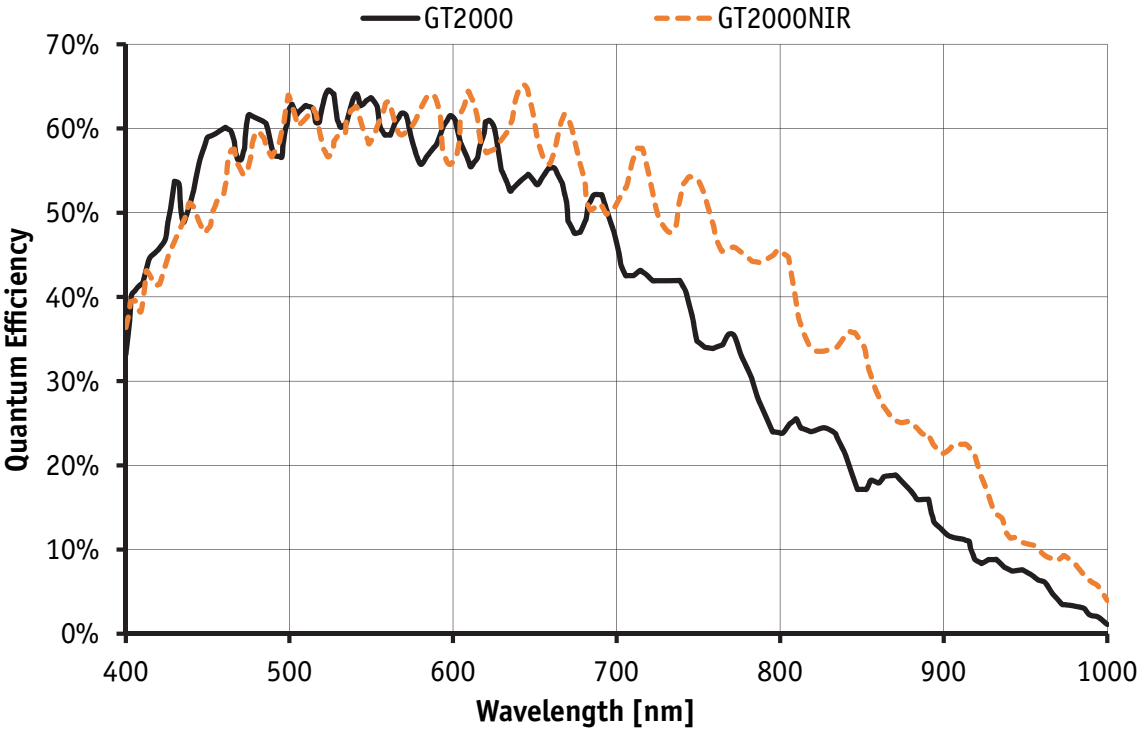


Figure 15: Prosilica GT2000/2000NIR monochrome spectral response

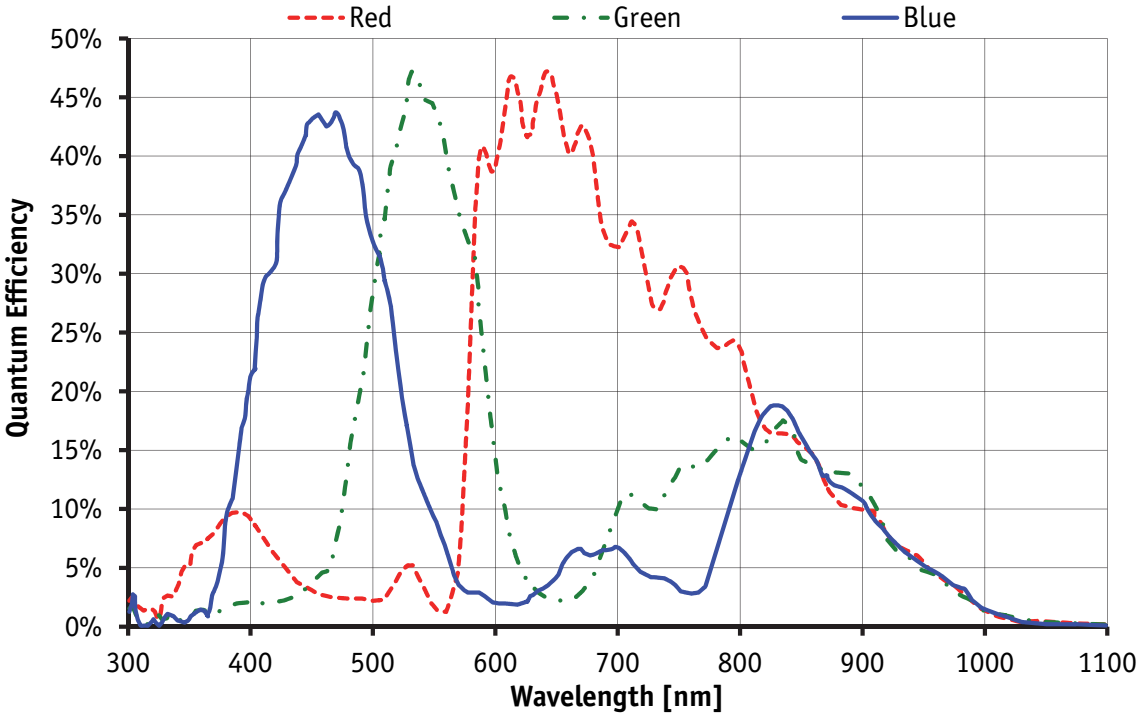


Figure 16: Prosilica GT2000C color spectral response (without IR cut filter)

Prosilica GT2050/2050C/2050NIR

Feature	Specification
Resolution	2048 x 2048
Sensor	CMOSIS CMV4000
Type	CMOS
Sensor size	Type 1
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	28.6 fps @ 124 MB/s with *GevSCPSPacketSize* = 8228‡; 32.0 burst mode*
Max image bit depth	12 bit
On-board FIFO	128 MB, 15 frames at full resolution
Mono formats	GT2050/GT2050NIR: Mono8, Mono12Packed, Mono12 GT2050C: Mono8
Color formats	BayerGB8, BayerGB12, BayerGB12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	34 µs† to 126.2 s; 1 µs increments
Gain control	0 to 26 dB
Horizontal/Vertical binning	N/A
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.5 W @ 12 VDC, 4.3 W PoE
Trigger latency	700 ns
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	210 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera, Resolution: 0.031; Accuracy: ±1°C

‡ Network card with jumbo packets is required. See Hardware Selection for Allied Vision GigE Cameras application note for a list of recommended Ethernet adapters.
*See *StreamFrameRateConstrain* in GigE Features Reference document.

† Camera firmware v1.52.8151 shows minimum exposure values without frame overhead time, i.e., 1 µs. See sensor datasheet for details on frame overhead time. This will be fixed in the next firmware release.

Table 11: Prosilica GT2050/2050C/2050NIR camera specifications

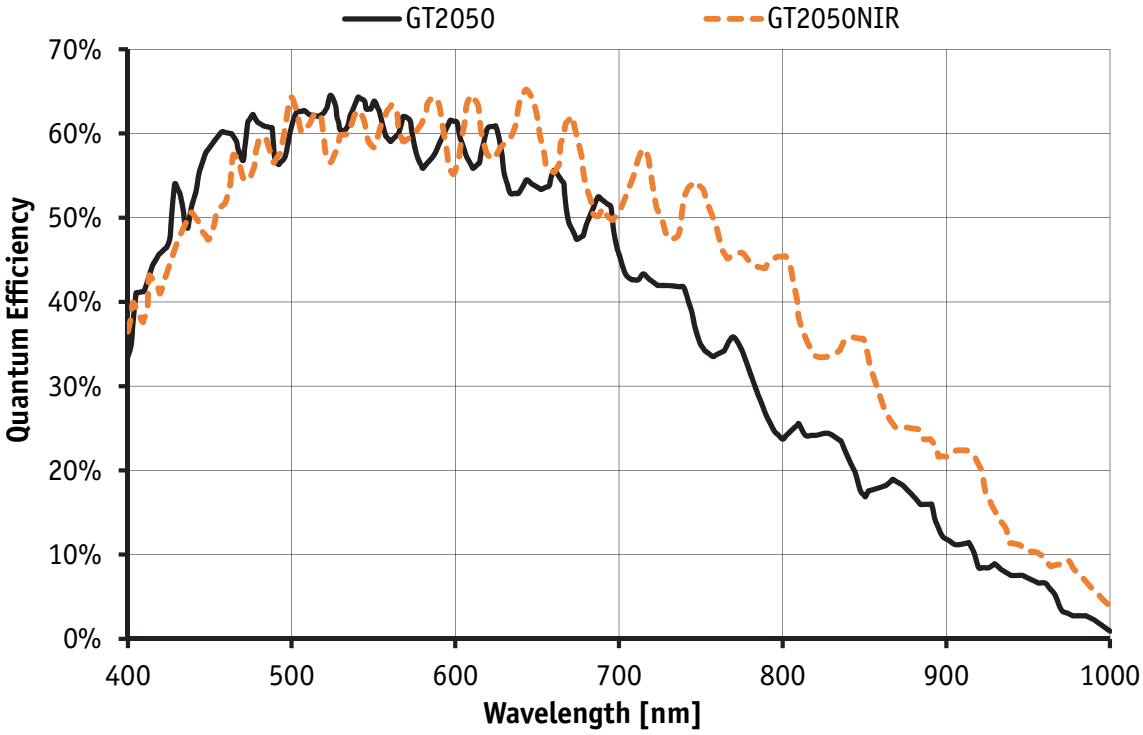


Figure 17: Prosilica GT2050/2050NIR monochrome spectral response

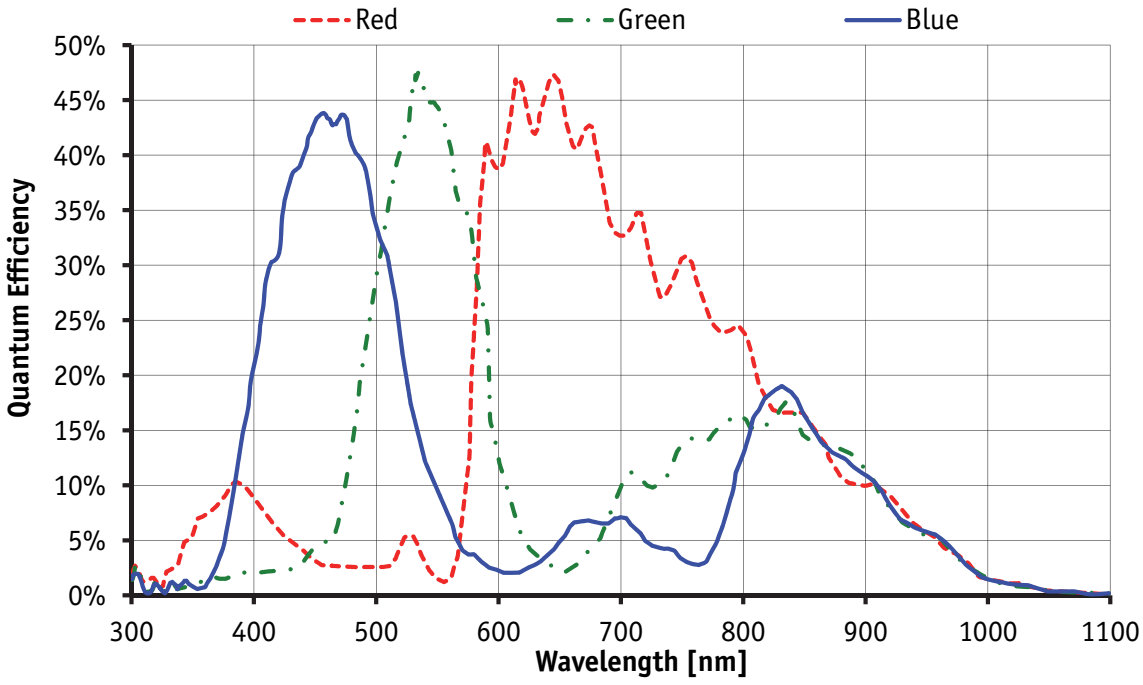


Figure 18: Prosilica GT2050C color spectral response (without IR cut filter)

Prosilica GT2300/2300C

Feature	Specification
Resolution	2336 x 1752
Sensor	OnSemi KAI-04050
Type	CCD Progressive
Sensor size	Type 1
Cell size	5.5 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	29.3 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT2300: Mono8, Mono12Packed, Mono12, Mono14 GT2300C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	4.9 W @ 12 VDC, 6.0 W PoE
Trigger latency	2.2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	229 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 12: Prosilica GT2300/2300C camera specifications

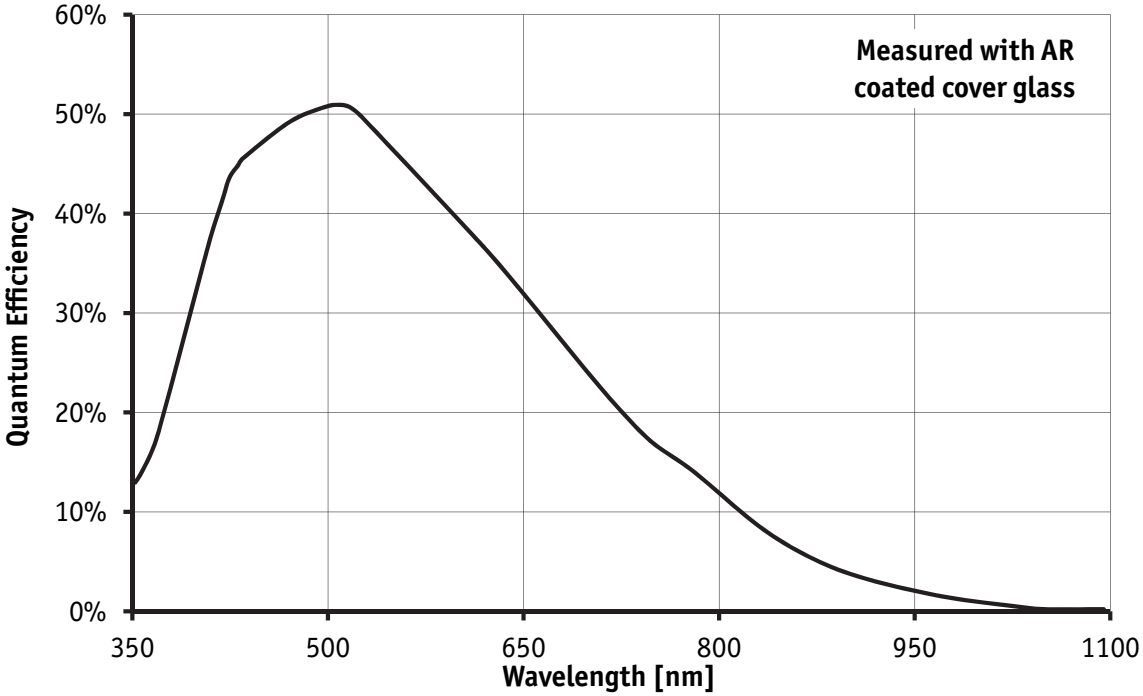


Figure 19: Prosilica GT2300 monochrome spectral response

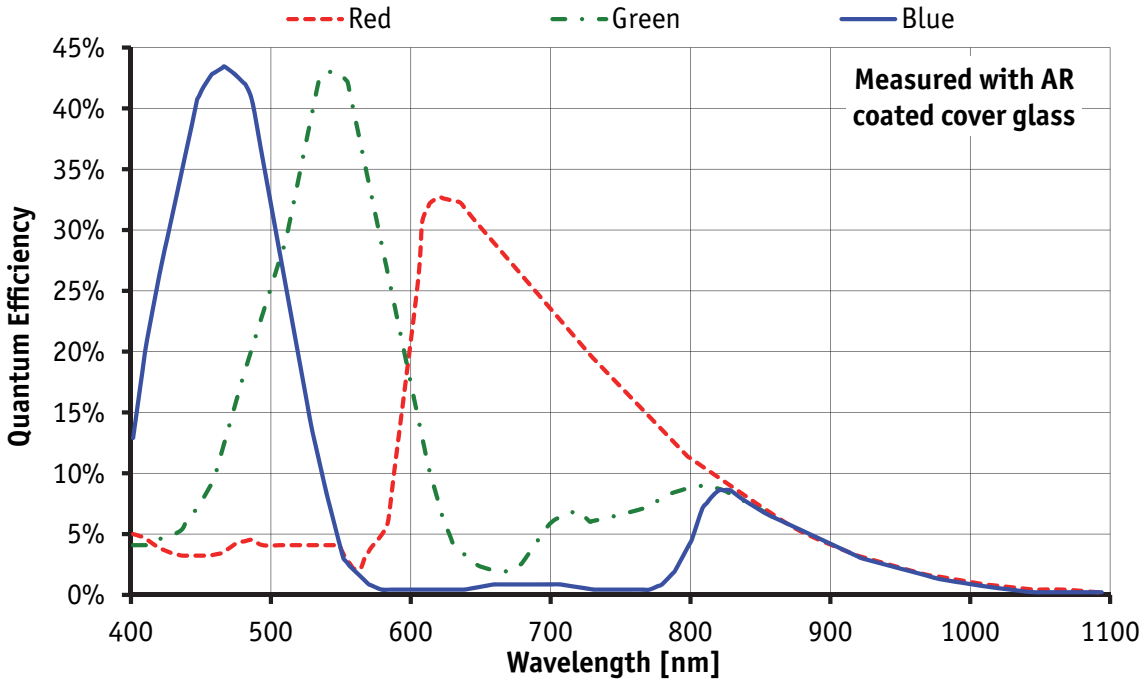


Figure 20: Prosilica GT2300C color spectral response (without IR cut filter)

Prosilica GT2450/2450C

Feature	Specification
Resolution	2448 x 2050
Sensor	Sony ICX625ALA. Sony ICX625AQA for color (with Super HAD microlens)
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	3.45 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	15 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 13 frames at full resolution
Mono formats	GT2450: Mono8, Mono12Packed, Mono12, Mono14 GT2450C: Mono8
Color formats	BayerRG8, BayerRG12, BayerGR12Packed, RGB8Packed, BGR8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	25 µs to 42.9 s; 1 µs increments
Gain control	0 to 30 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	3.8 W @ 12 VDC, 4.7 W PoE
Trigger latency	1.1 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +65 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	86 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	211 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C

Table 13: Prosilica GT2450/2450C camera specifications

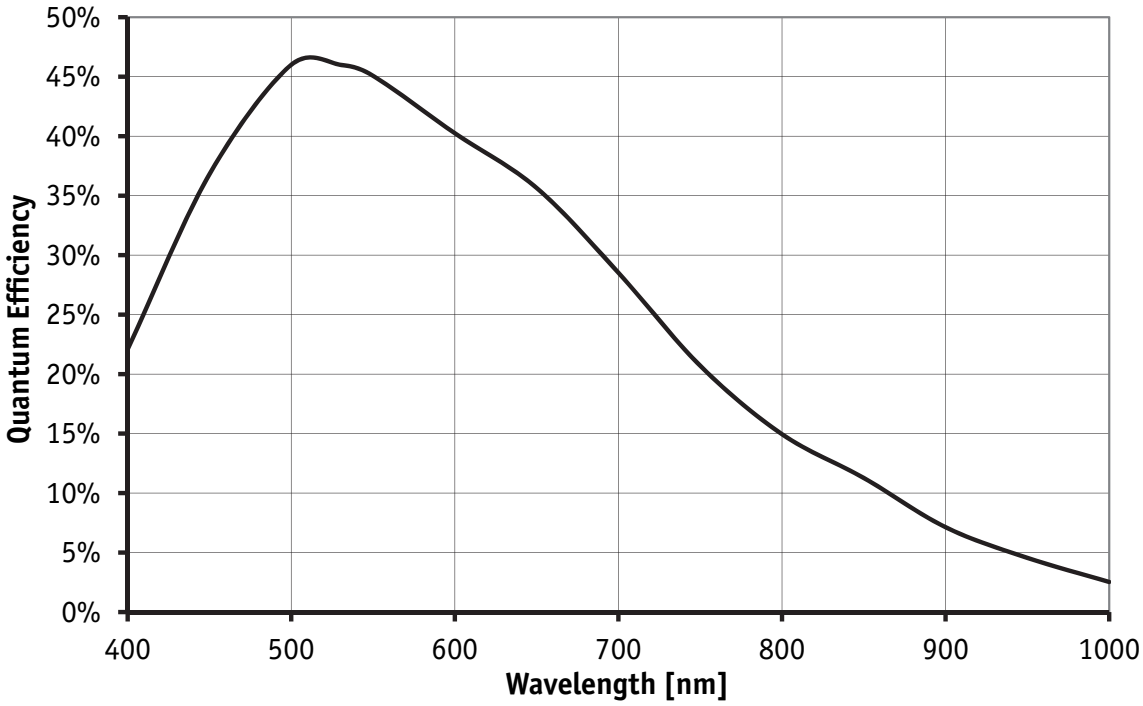


Figure 21: Prosilica GT2450 monochrome spectral response

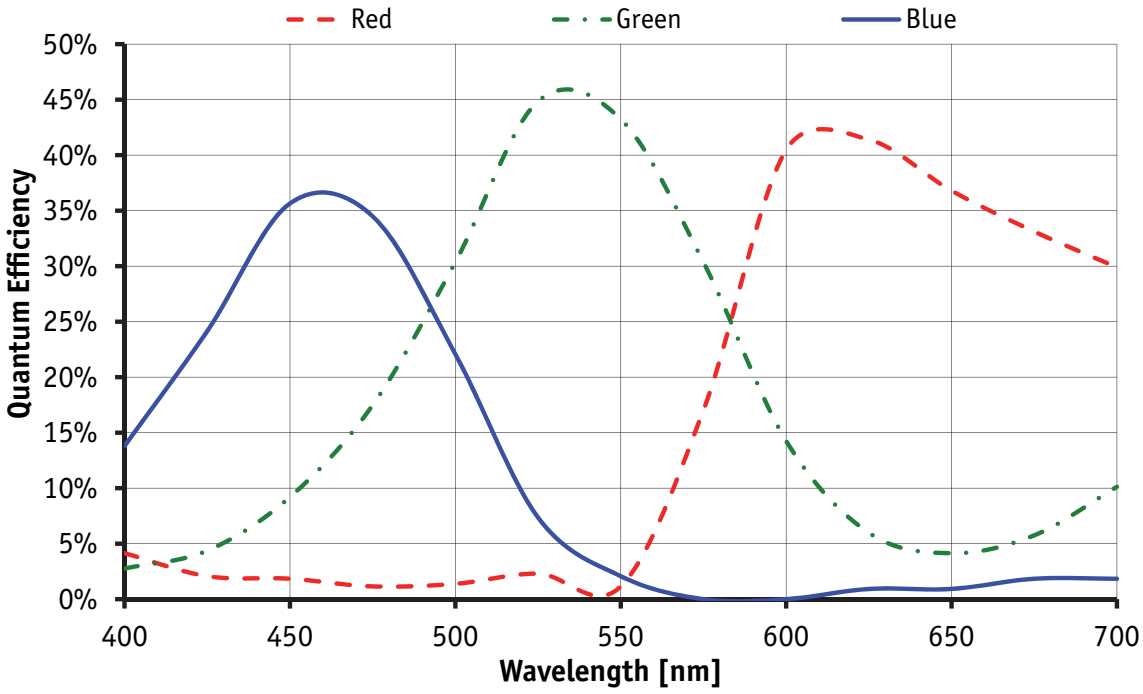


Figure 22: Prosilica GT2450C color spectral response (without IR cut filter)

Prosilica GT2750/2750C

Feature	Specification
Resolution	2750 x 2200
Sensor	Sony ICX694 ALG, ICX694 AQG for color (with EXview HAD II microlens)
Type	CCD Progressive
Sensor size	Type 1
Cell size	4.54 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	19.8 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 21 frames at full resolution
Mono formats	GT2750: Mono8, Mono12Packed, Mono12, Mono14 GT2750C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage Requirements	7–25 VDC, or PoE
Power consumption	5.4 W @ 12 VDC, 6.6 W PoE
Trigger latency	2.2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	224 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 14: Prosilica GT2750/2750C camera specifications

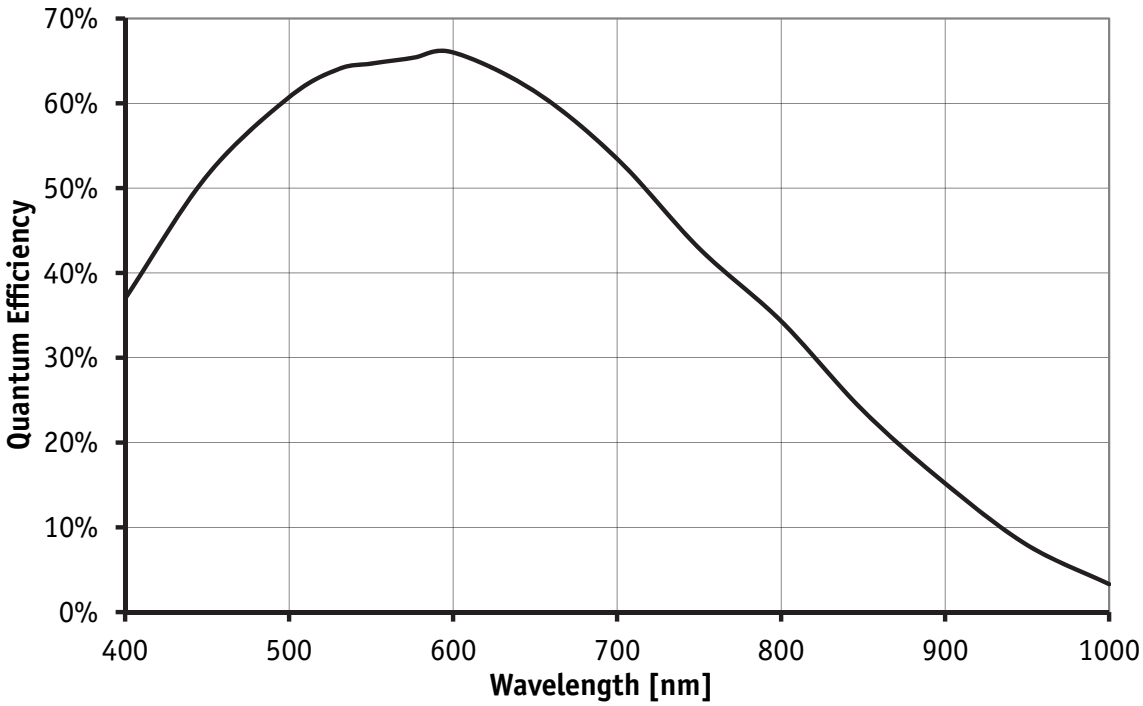


Figure 23: Prosilica GT2750 monochrome spectral response

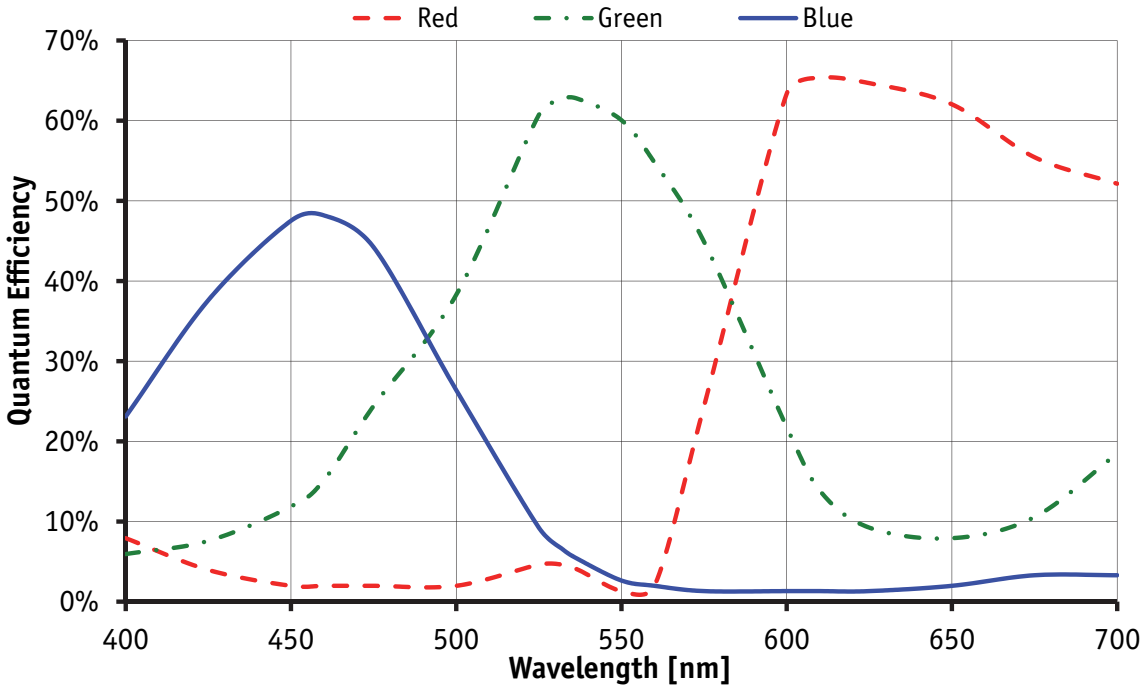


Figure 24: Prosilica GT2750C color spectral response (without IR cut filter)

Prosilica GT3300/3300C

Feature	Specification
Resolution	3296 x 2472
Sensor	Cameras with part number 02-2622B, 02-2623B: OnSemi KAI-08051 Cameras with part number 02-2622A, 02-2623A: OnSemi KAI-08050
Type	CCD Progressive
Sensor size	Type 4/3
Cell size	5.5 µm
Lens mount	F
Max frame rate at full resolution	14.7 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB, 16 frames at full resolution
Mono formats	GT3300: Mono8, Mono12Packed, Mono12, Mono14 GT3300C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed, YUV444Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	5.6 W @ 12 VDC, 6.9 W PoE
Trigger latency	2.2 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	121 x 59.7 x 59.7 mm including connectors, w/o tripod and lens
Mass	314 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for both camera and sensor Resolution: 0.031; Accuracy: ±1°C

Table 15: Prosilica GT3300/3300C camera specifications

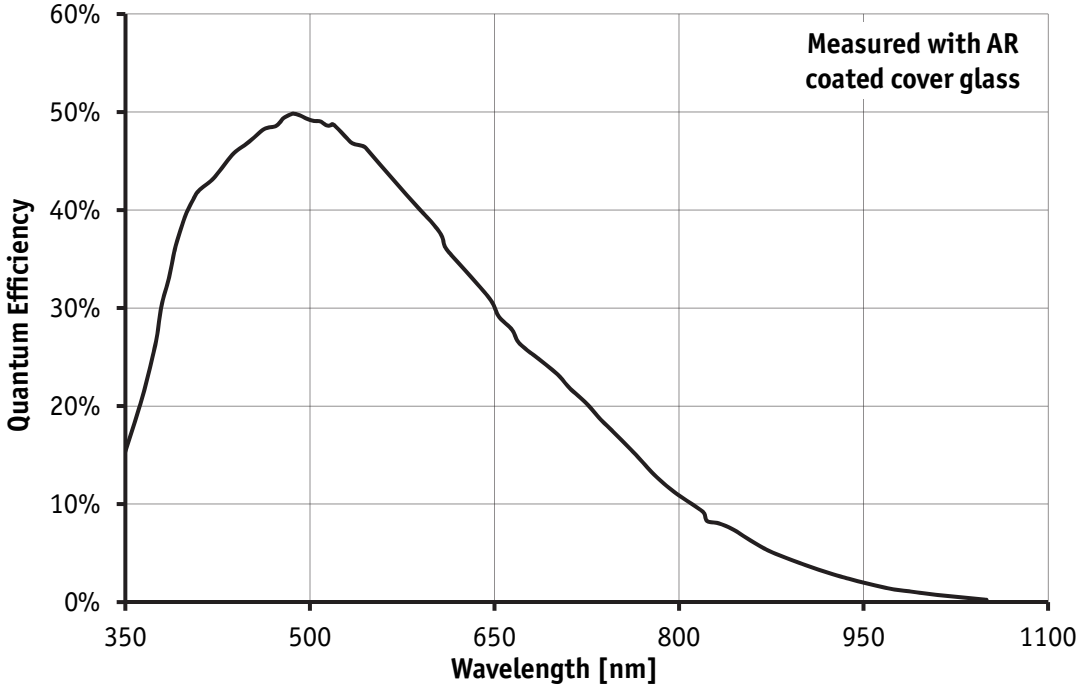


Figure 25: Prosilica GT3300 monochrome spectral response

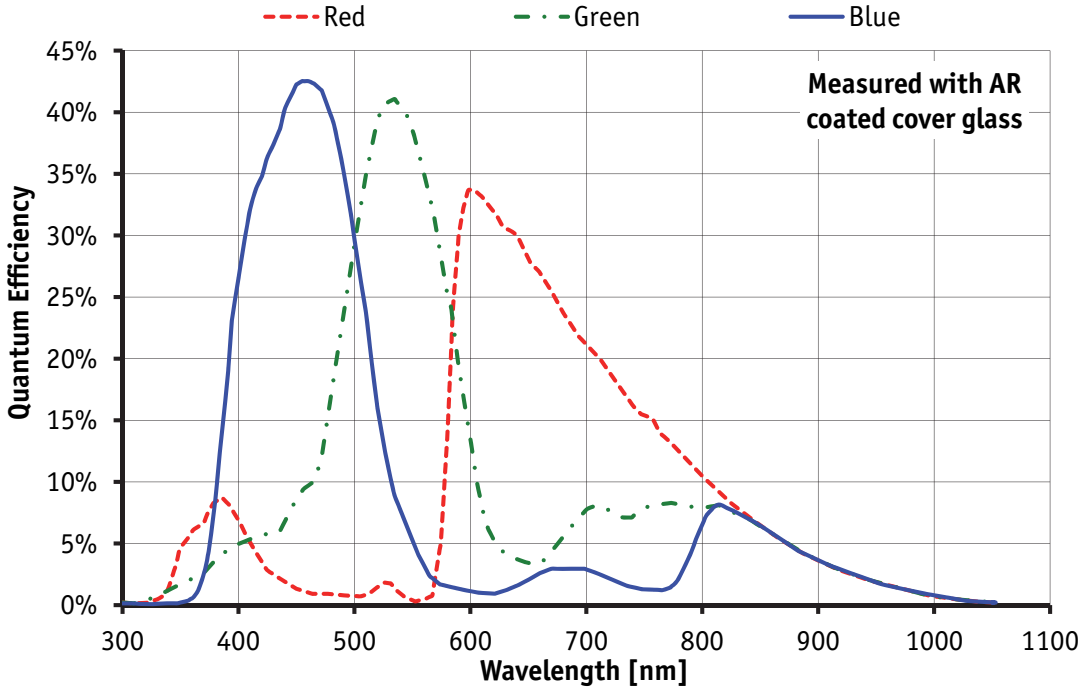


Figure 26: Prosilica GT3300C color spectral response (without IR cut filter)

Prosilica GT3400/3400C

Feature	Specification
Resolution	3384 x 2704
Sensor	Sony ICX814 (with EXview HAD II microlens)
Type	CCD Progressive
Sensor size	Type 1
Cell size	3.69 µm
Lens mount	C (adjustable)
Max frame rate at full resolution	12.7 fps @ 124 MB/s with *GevSCPSPacketSize* = 8228‡; 14 burst mode*
Max image bit depth	Monochrome cameras: 14 bit; color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT3400: Mono8, Mono12Packed, Mono12, Mono14 GT3400C: Mono8
Color formats	BayerRG8, BayerRG12, BayerRG12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	10 µs to 26.8 s; 1 µs increments
Gain control	0 to 31 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	5.4 W @ 12 VDC, 6.6 W PoE
Trigger latency	2.5 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +60 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	92 x 53.3 x 33 mm including connectors, w/o tripod and lens
Mass	224 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C
‡ Network card with jumbo packets is required. See Hardware Selection for Allied Vision GigE Cameras application note for a list of recommended Ethernet adapters. *See *StreamFrameRateConstrain* in GigE Features Reference document.	

Table 16: Prosilica GT3400/3400C camera specifications

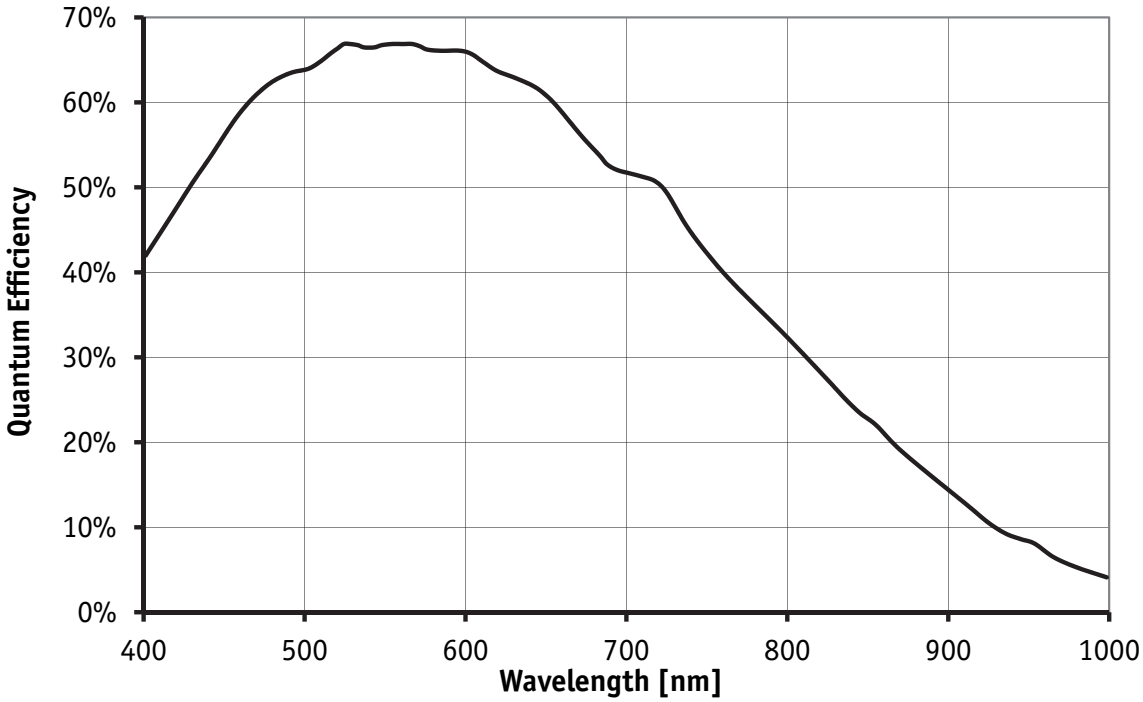


Figure 27: Prosilica GT3400 monochrome spectral response

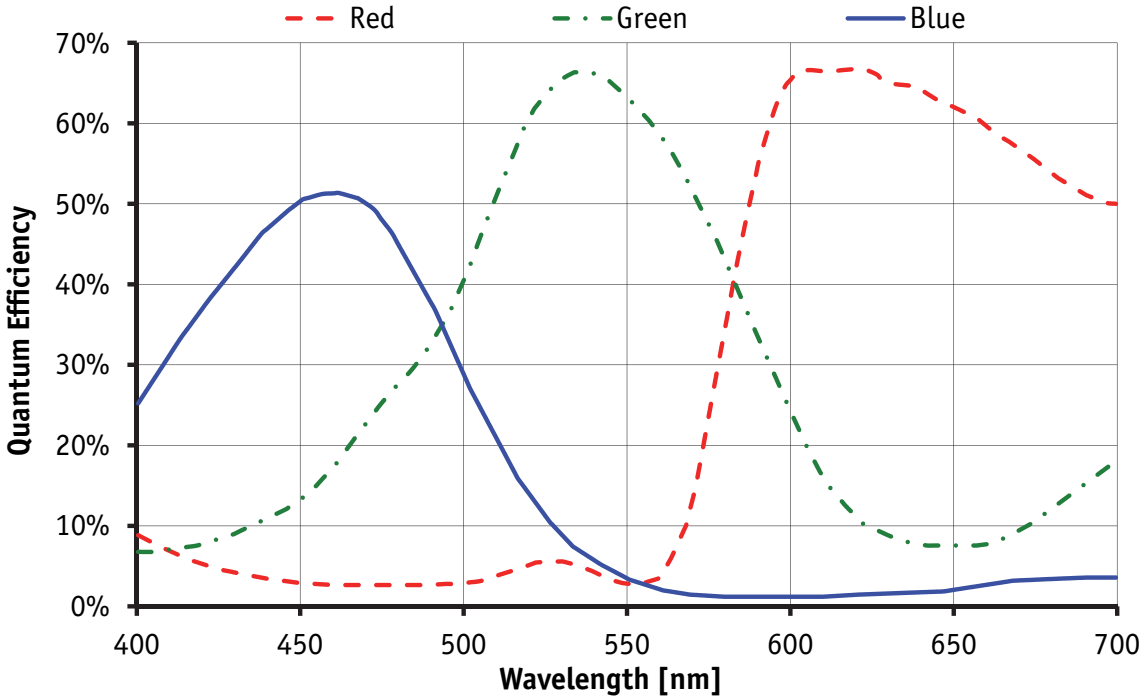


Figure 28: Prosilica GT3400C color spectral response (without IR cut filter)

Prosilica GT4905/4905C

Feature	Specification
Resolution	4896 x 3264
Sensor	OnSemi KAI-16050
Type	CCD Progressive
Sensor size	APS-H (32.36 mm diagonal)
Cell size	5.5 µm
Lens mount	F (Optional: M42-Mount, M58-Mount)
Max frame rate at full resolution	7.5 fps @ 124 MB/s with *GevSCPSPacketSize* = 8228‡; 8.5 burst mode*
Max image bit depth	Monochrome cameras: 14 bit; color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT4905: Mono8, Mono12Packed, Mono12, Mono14 GT4905C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	15 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	7.3 W @ 12 VDC, 9.0 W PoE
Trigger latency	2.5 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +50 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	96 x 66 x 53.3 mm including connectors, w/o tripod and lens
Mass	372g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C
‡ Network card with jumbo packets is required. See Hardware Selection for Allied Vision GigE Cameras application note for a list of recommended Ethernet adapters. *See *StreamFrameRateConstrain* in GigE Features Reference document.	

Table 17: Prosilica GT4905/4905C camera specifications

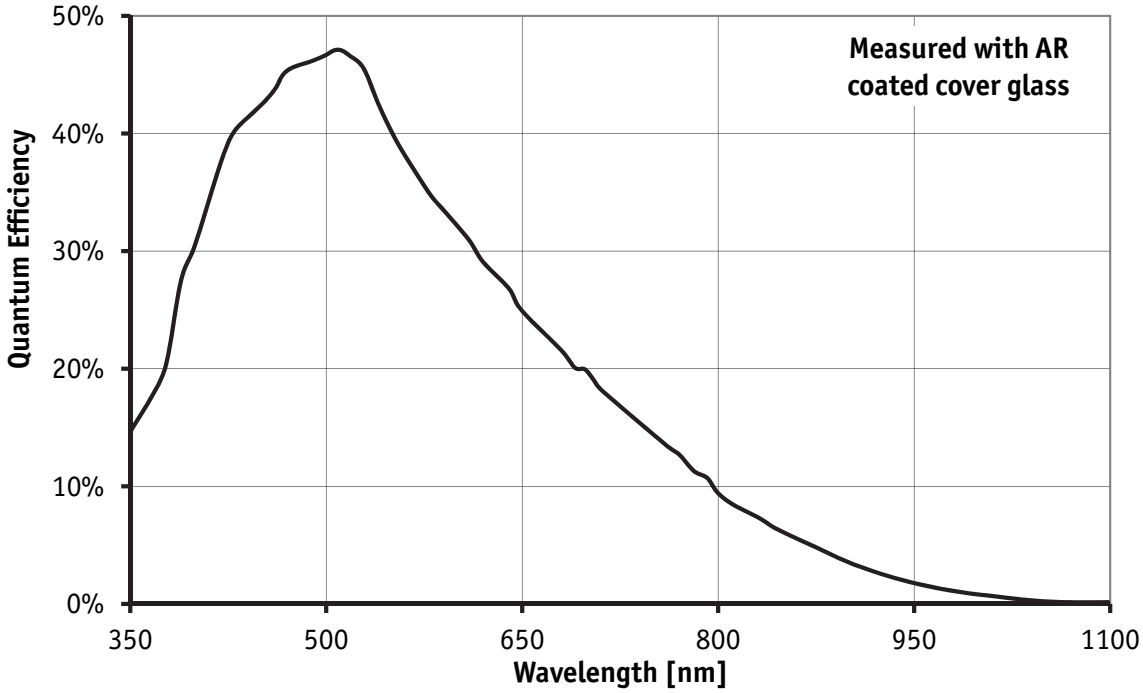


Figure 29: Prosilica GT4905 monochrome spectral response

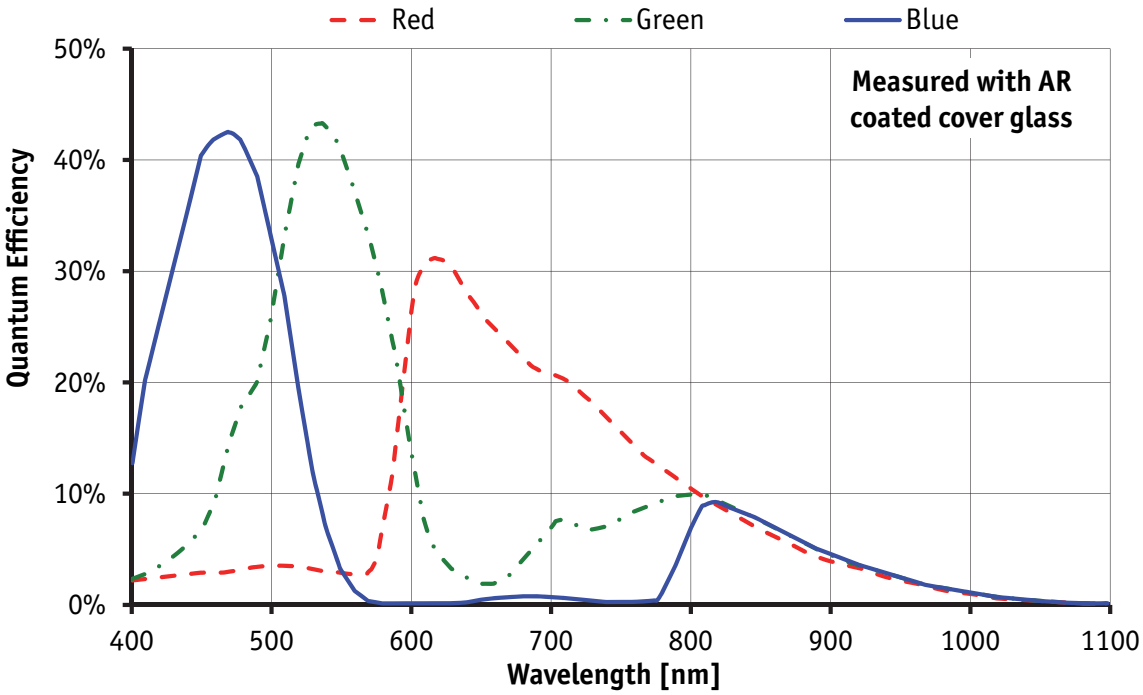


Figure 30: Prosilica GT4905C color spectral response (without IR cut filter)

Prosilica GT4907/4907C

Feature	Specification
Resolution	4864 x 3232
Sensor	OnSemi KAI-16070
Type	CCD Progressive
Sensor size	35 mm
Cell size	7.4 µm
Lens mount	F (Optional: M42-Mount, M58-Mount)
Max frame rate at full resolution	7.6 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT4907: Mono8, Mono12Packed, Mono12, Mono14 GT4907C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	35 µs to 26.8 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	7.7 W @ 12 VDC, 9.5 W PoE
Trigger latency	2.5 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +50 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	96 x 66 x 53.3 mm including connectors, w/o tripod and lens
Mass	372g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C

Table 18: Prosilica GT4907/4907C camera specifications

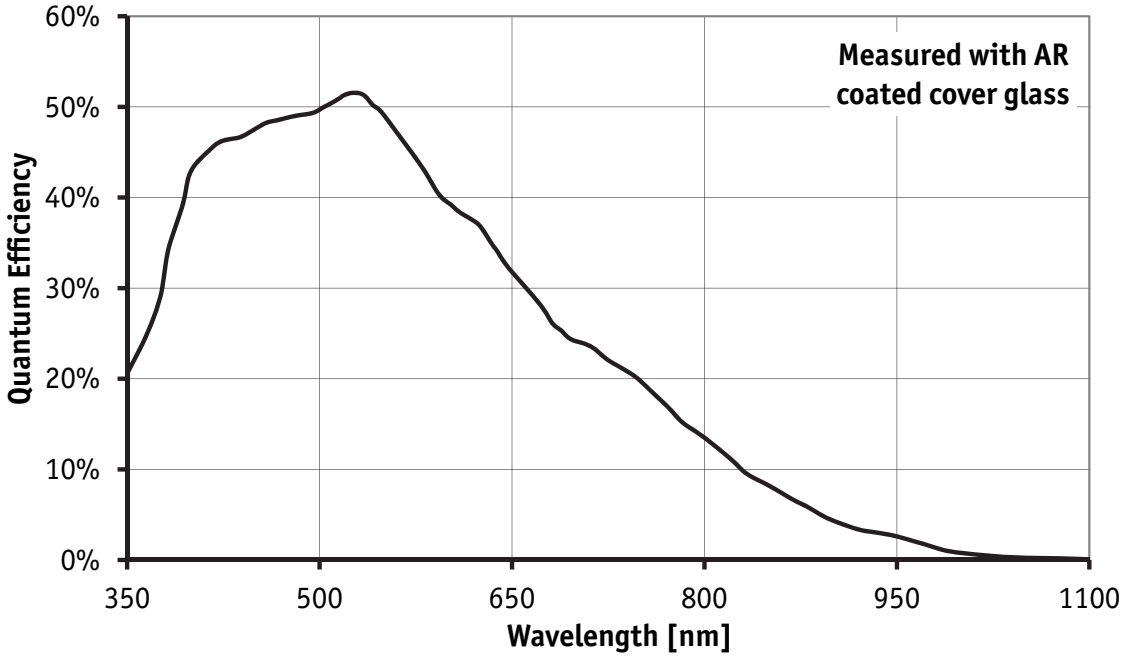


Figure 31: Prosilica GT4907 monochrome spectral response

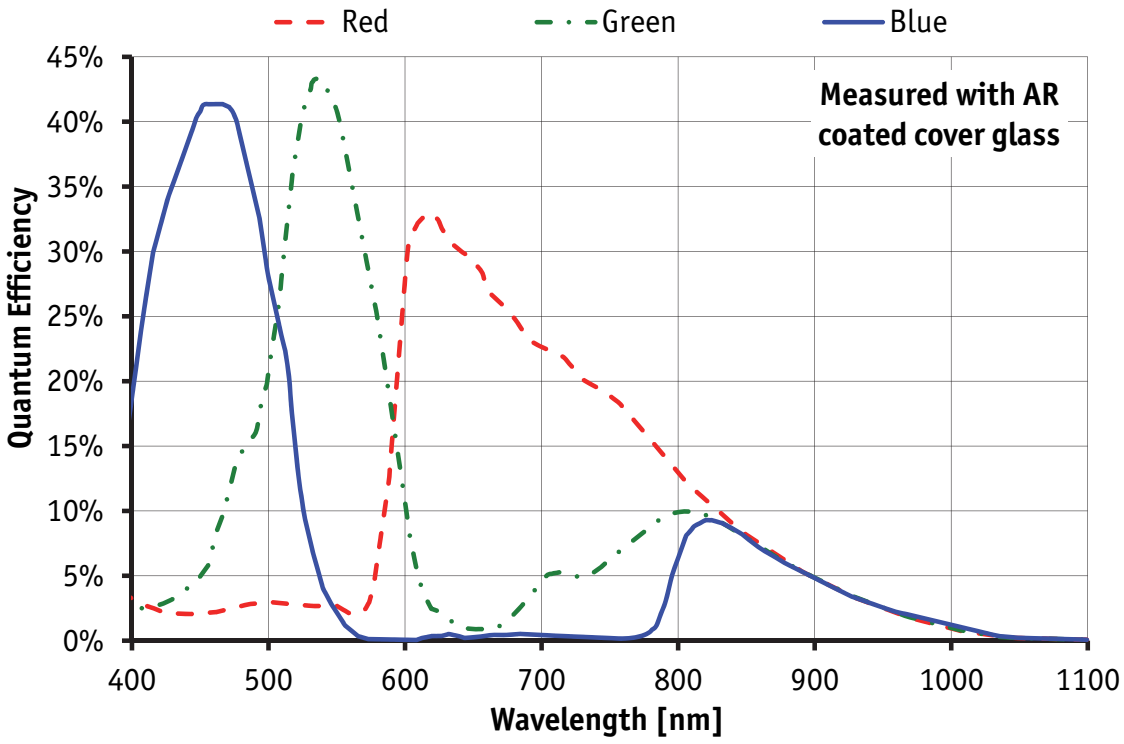


Figure 32: Prosilica GT4907C color spectral response (without IR cut filter)

Prosilica GT6600/6600C

Feature	Specification
Resolution	6576 x 4384
Sensor	OnSemi KAI-29050
Type	CCD Progressive
Sensor size	35 mm (43.5 mm diagonal)
Cell size	5.5 µm
Lens mount	F (Optional: M42-Mount, M58-Mount)
Max frame rate at full resolution	4 fps
Max image bit depth	Monochrome cameras: 14 bit Color cameras: 12 bit
On-board FIFO	128 MB
Mono formats	GT6600: Mono8, Mono12Packed, Mono12, Mono14 GT6600C: Mono8
Color formats	BayerGR8, BayerGR12, BayerGR12Packed, RGB8Packed, BGR8Packed, RGBA8Packed, BGRA8Packed, YUV411Packed, YUV422Packed
Exposure control	30 µs to 33.5 s; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 columns
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1 TxD, 1 RxD
Voltage requirements	7–25 VDC, or PoE
Power consumption	6.6 W @ 12 VDC, 8.1 W PoE
Trigger latency	2.5 µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 to +50 °C ambient temperature (without condensation)
Storage temperature	-20 to +70 °C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H)	96 x 66 x 53.3 mm including connectors, w/o tripod and lens
Mass	372 g
Hardware interface standard	PoE, IEEE 802.3af 1000BASE-T, 100BASE-TX
Software interface standard	GigE Vision Standard 1.2
Regulatory	CE, FCC Class A, RoHS (2011/65/EU)
Temperature monitoring	Available for camera Resolution: 0.031; Accuracy: ±1°C

Table 19: Prosilica GT6600/6600C camera specifications

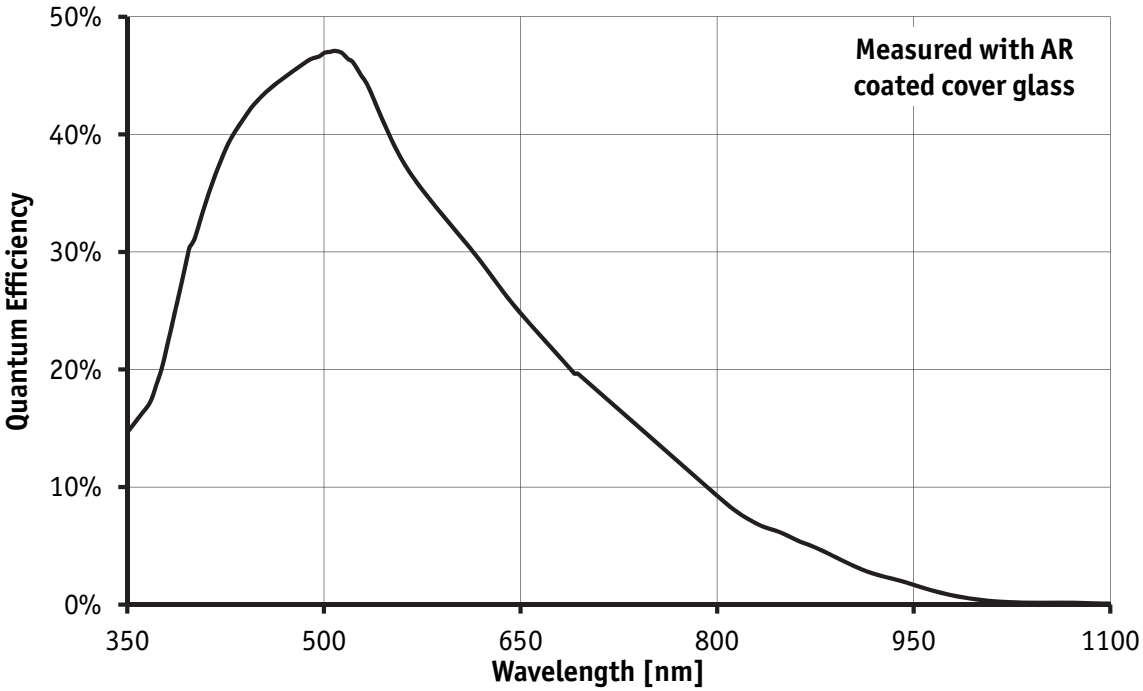


Figure 33: Prosilica GT6600 monochrome spectral response

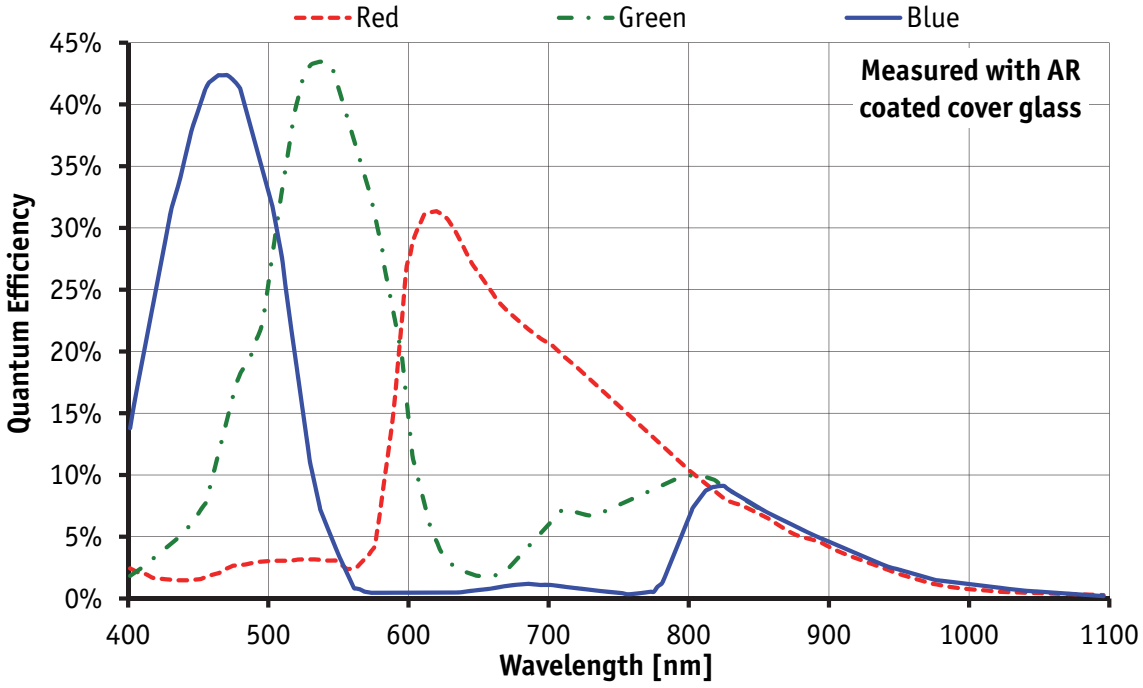


Figure 34: Prosilica GT6600C color spectral response (without IR cut filter)

Camera smart features

Allied Vision cameras support a number of standard and extended features. The table below identifies a selection of interesting capabilities of the Prosilica GT camera family.

www

A complete listing of camera controls, including control definitions can be found online:

PvAPI users: GigE Camera and Driver Attributes document

VIMBA and third-party software users: GigE Features Reference document

Control	Description
Auto controls	Automatically adjust exposure, gain, iris, and white balance
Defect pixel correction	Correct defective pixels, available on select models
Region of interest	Independent x and y control with 1 pixel resolution
Multicast	Streaming to multiple computers
Event channel	In-camera events including exposure start and trigger are asynchronously broadcasted to the host computer
Chunk data	Captured images are bundled with attribute information such as exposure and gain value
Color correction matrix	Correct color rendering for specific color temperature
Gamma, Hue, Saturation	Adjust image gamma, hue and saturation
Precision Time Protocol IEEE1588	Synchronize clocks of multiple cameras using multicast messaging
Lens control	Control P-Iris, DC-Iris, and EF lenses (available on select large format models only)
Look-up table (LUT)	LUTs available on select models
Mirroring	ReverseX and ReverseY available on select models
Decimation	Sub-sampling available on select models

Table 20: Prosilica GT camera and driver attribute highlights

Filters

All Prosilica GT color models are equipped with an infrared block filter (IR filter). This filter is employed to prevent infrared wavelength photons from passing to the sensor. In the absence of IR filter, images are dominated by red and incapable of being properly color balanced. Monochrome cameras do not employ an IR filter.

The figure below shows the filter transmission response for the IRC30 filter employed in the Prosilica GT cameras.

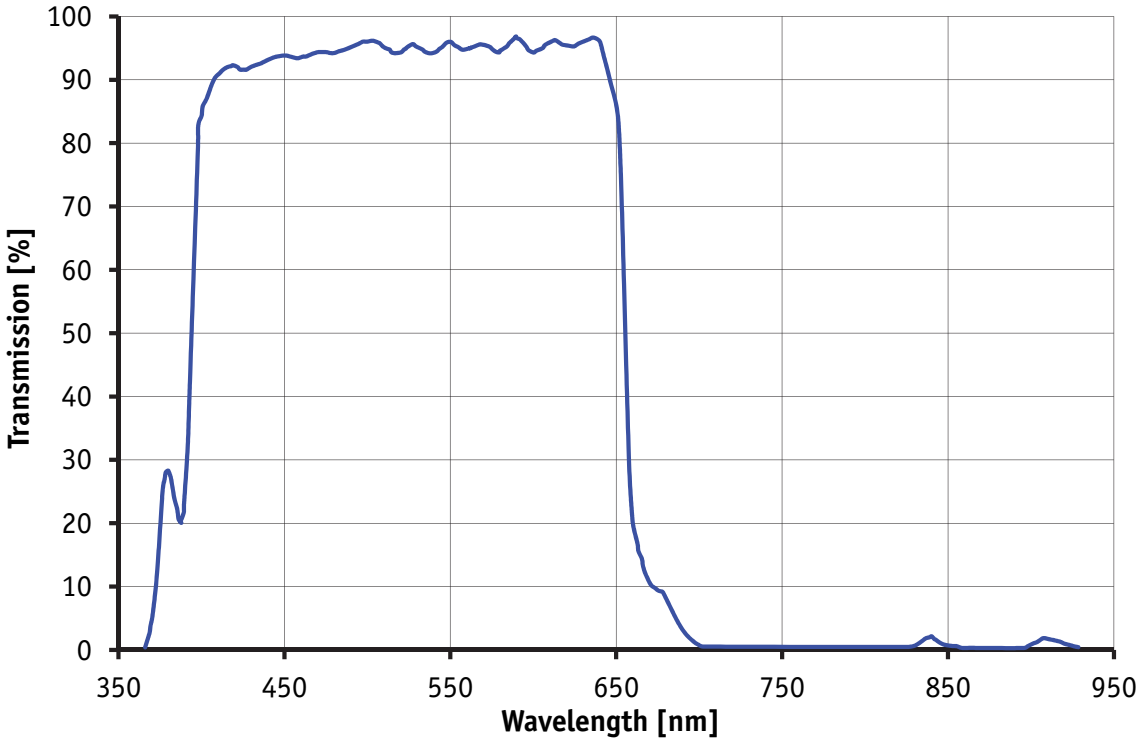


Figure 35: IRC30 filter transmission response

Camera dimensions

The Prosilica GT family supports a range of sensor configurations. To support this sensor variety three camera body sizes are used:

- Prosilica GT standard
- Prosilica GT extended
- Prosilica GT large format

www

Prosilica GT cameras are available with different lens mount options. See **Modular Concept** document for details: http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/modular-concept/Modular_concept_external.pdf

Prosilica GT standard cameras (C-Mount)

Prosilica GT1290, GT1380, GT1600, GT2000, GT2050, GT2450

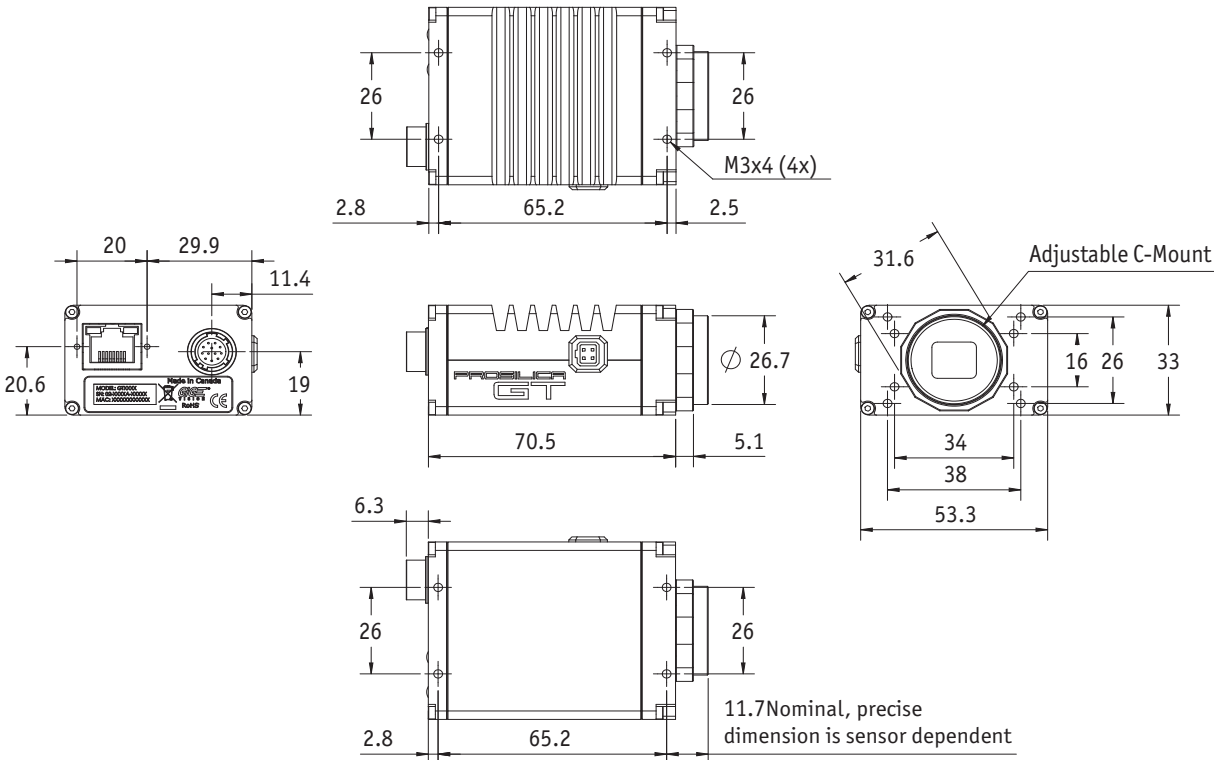


Figure 36: Mechanical dimensions for C-Mount Prosilica GT standard cameras

Note

Prosilica GT standard cameras are available with M42-Mount, see Technical Drawing - Prosilica GT Standard M42-Mount for dimensions.

Prosilica GT extended cameras

C-Mount

Prosilica GT1660, GT1910, GT1920, GT2300, GT2750, GT3400

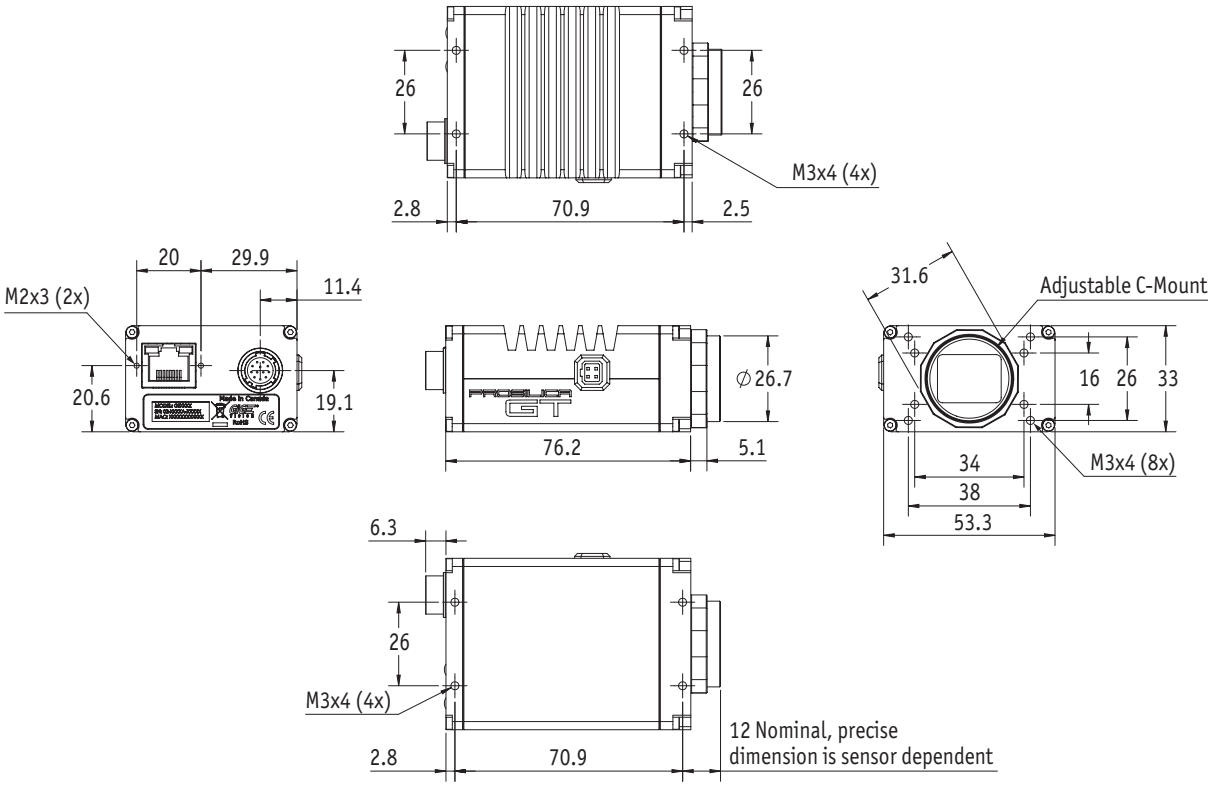


Figure 37: Mechanical dimensions for C-Mount Prosilica GT extended cameras

F-Mount

Prosilica GT3300

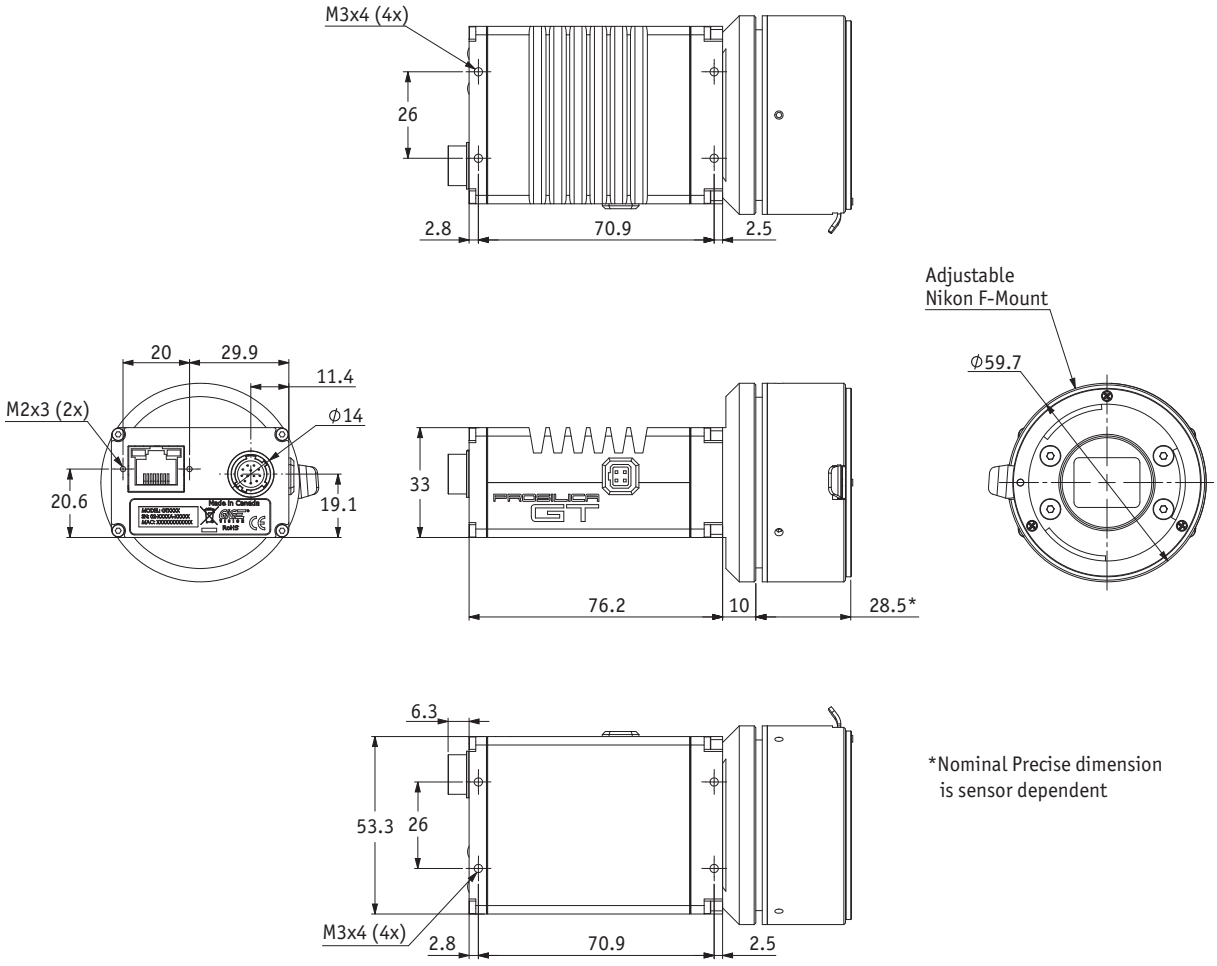


Figure 38: Mechanical dimensions for F-Mount GT3300

Note

Prosilica GT extended cameras are available with M42-Mount, see technical drawing for dimensions.

Prosilica GT large format cameras

EF-Mount (Planarity adjustable)

Prosilica GT1930L

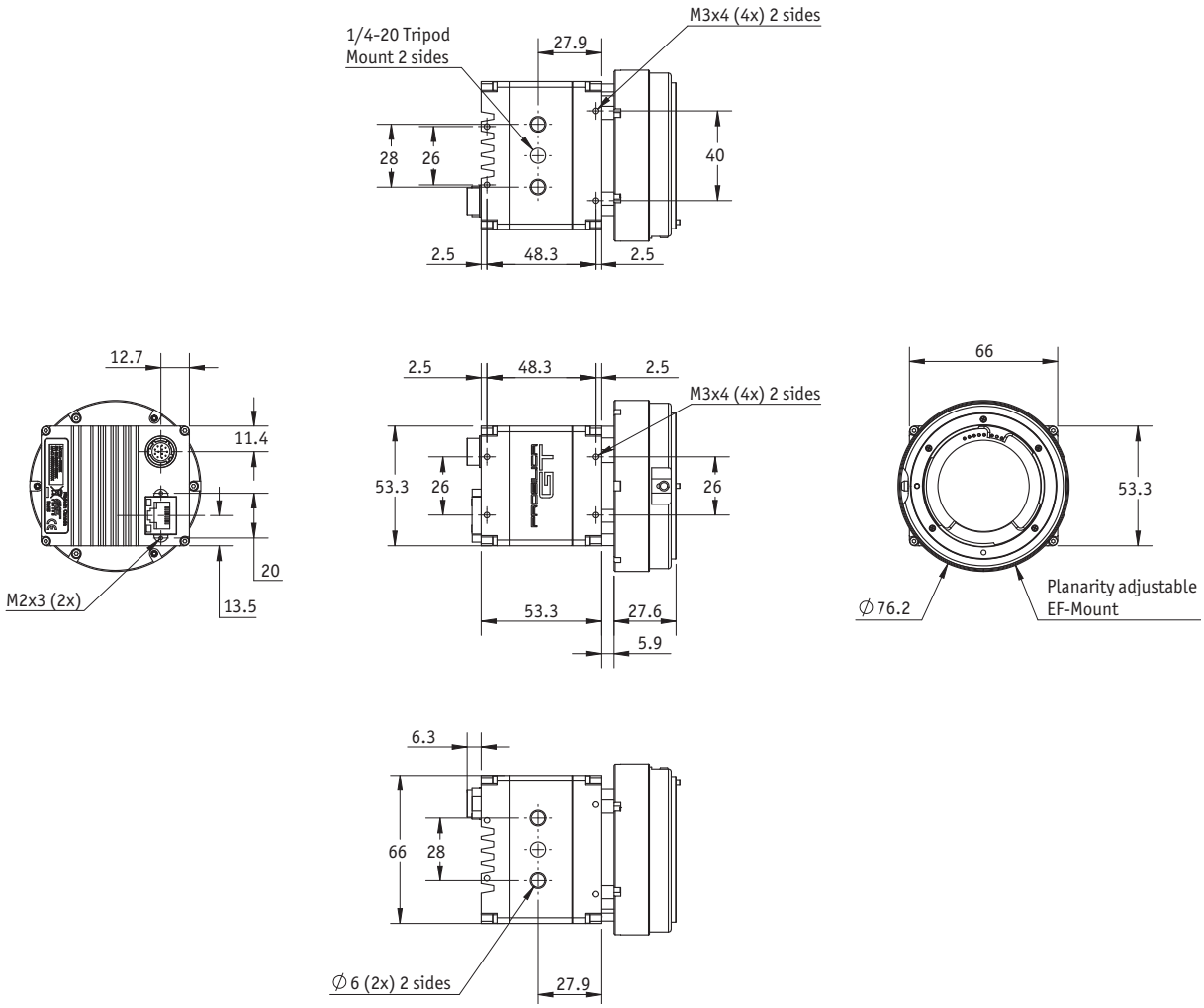
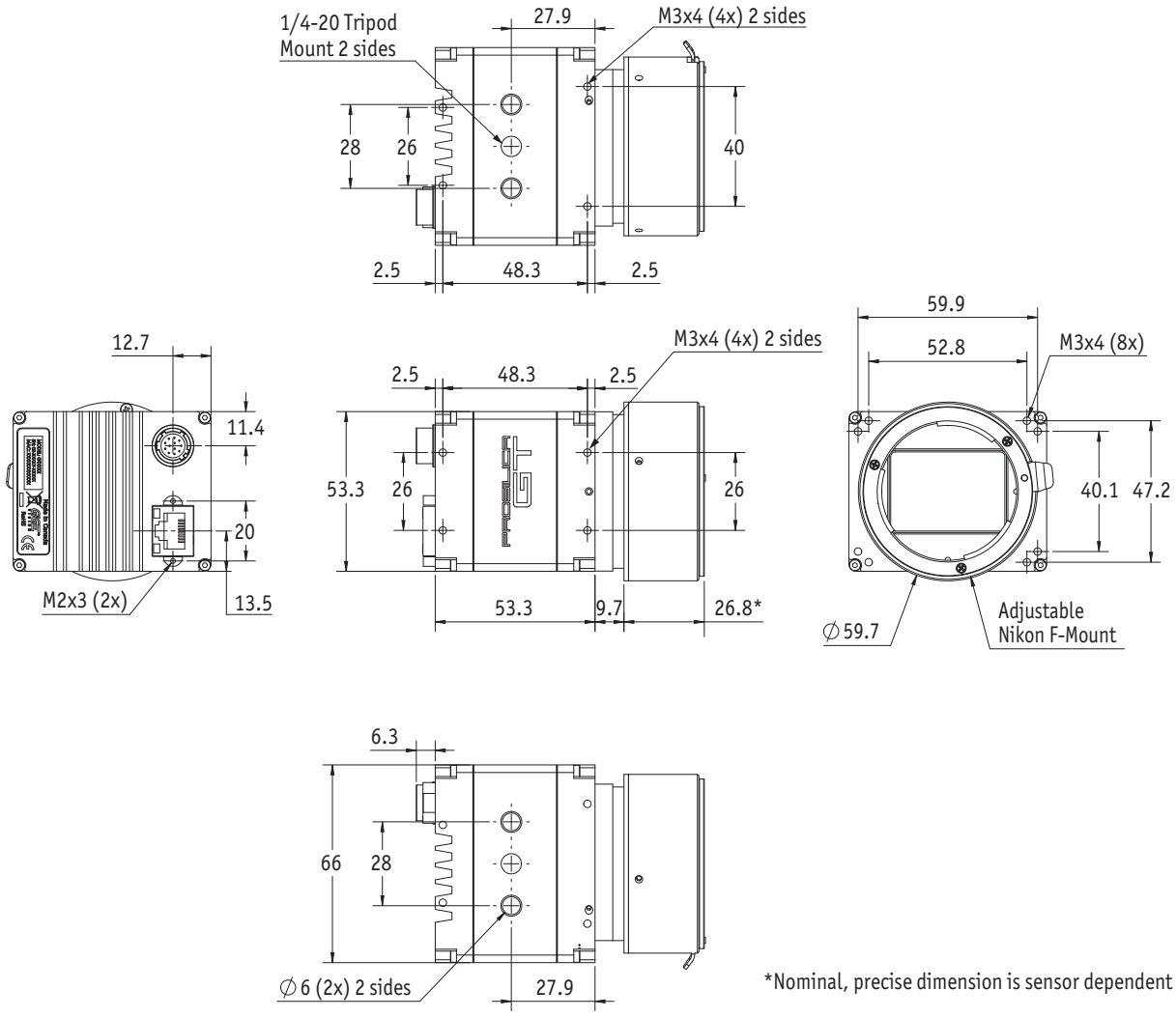


Figure 39: Mechanical dimensions of Prosilica GT1930L with planarity adjustable EF-Mount

F-Mount

Prosilica GT4905, GT4907, GT6600



*Nominal, precise dimension is sensor dependent

Figure 40: Mechanical dimensions for F-Mount Prosilica GT large format cameras.

Note

- Prosilica GT large format cameras are **NOT** available with C-Mount.
- GT4905, GT4907, and GT6600 cameras are available with **M42** / **M58-Mount**, see technical drawing for dimensions.

Tripod adapter

Prosilica GT standard and extended cameras can be mounted on a camera tripod by using mounting plate P/N 02-5036A.

Note

Contact your Allied Vision sales representative to purchase GT mounting plate 02-5036A.

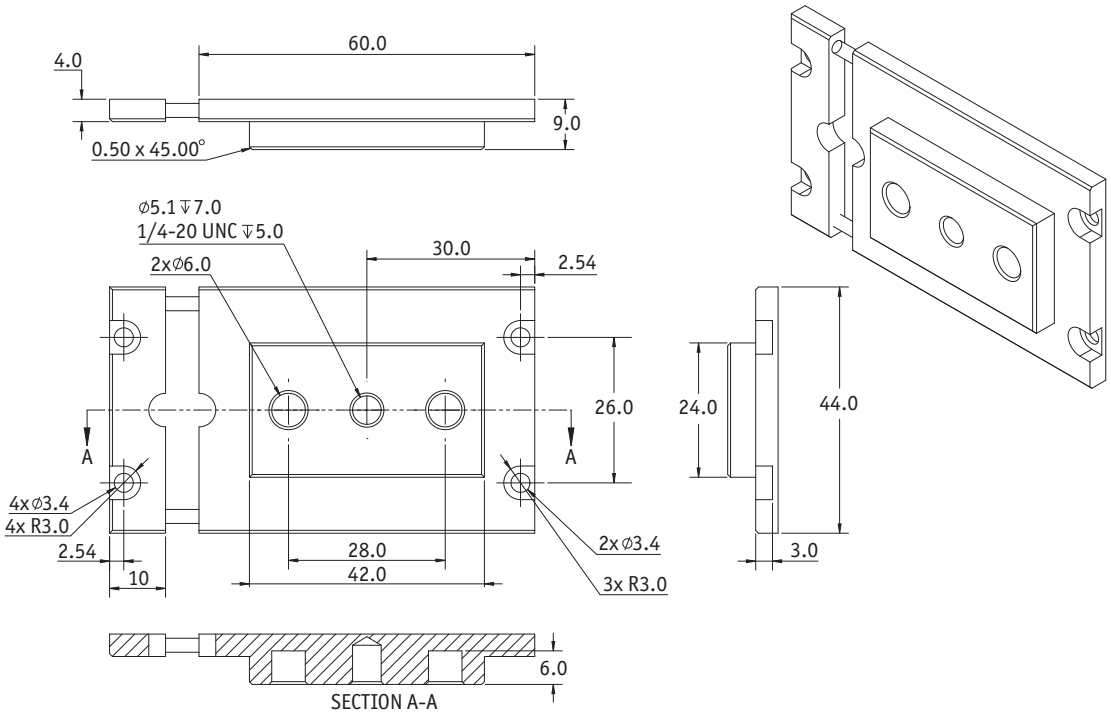


Figure 41: Tripod mounting plate for Prosilica GT standard and extended cameras

Prosilica GT large format cameras can be mounted on a camera tripod by using the tripod mount hole integrated into the camera body, as shown in the figure 42.

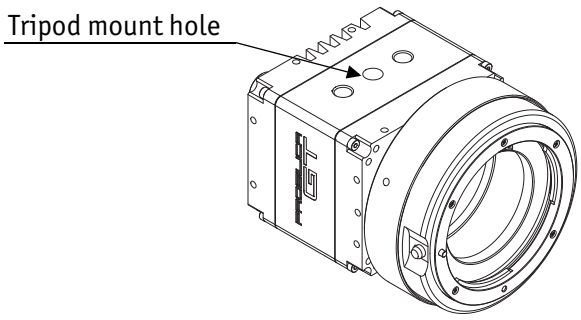


Figure 42: Integrated tripod mount holes for Prosilica GT large format cameras

C-Mount flange focal distance

Flange focal distance is the optical distance from the mounting flange to image sensor die. Prosilica GT C-Mount cameras are optically calibrated to a standard 17.526 mm optical flange focal distance, with a ±10 µm tolerance.

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Prosilica GT cameras are shipped with adjustable C-Mount. The camera can also be built with a CS-Mount with a standard 12.50 mm optical flange focal distance and a ± 10 µm tolerance.

See **Modular Concept** for more information:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/modular-concept/Modular_concept_external.pdf

Adjustment of C-Mount

If for some reason the lens mount requires adjustment, use the following method.

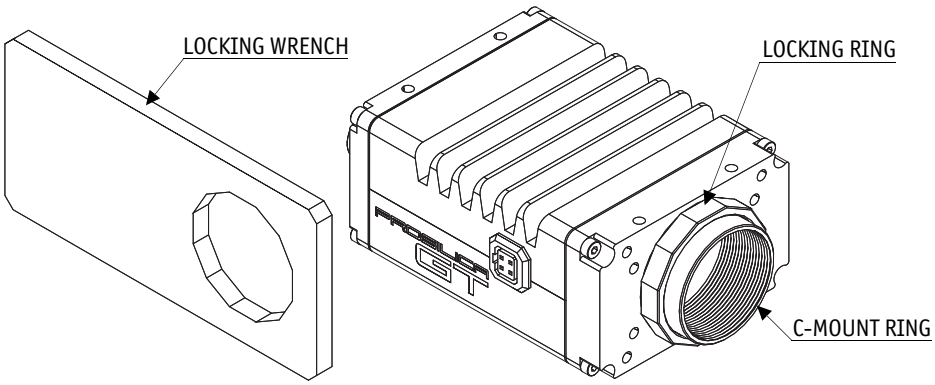


Figure 43: Prosilica GT camera and locking wrench

Loosen locking ring

Use an adjustable wrench to loosen the locking ring. Be careful not to scratch the camera. When the locking ring is loose, unthread the ring a few turns from the camera face.

Note

A wrench suitable for this procedure is available for purchase from Allied Vision.
P/N: 02-5003A

Image to infinity

Use a C-Mount compatible lens that allows an infinity focus. Set the lens to infinity and image a distant object—10 to 15 m should suffice. Make sure the lens is firmly threaded onto the C-Mount ring. Rotate the lens and C-Mount ring until the image is focused. Carefully tighten the locking ring and recheck focus.

Lens protrusion for C-Mount cameras

Lens protrusion is the distance from outer edge of C-Mount ring to contact point of first surface internal to C-Mount ring. For color cameras this surface is the IR-filter holder, and for mono cameras this surface is the internal camera front plate (see figure 44). Table 21 presents lens protrusion values for Prosilica GT cameras with C-Mount.

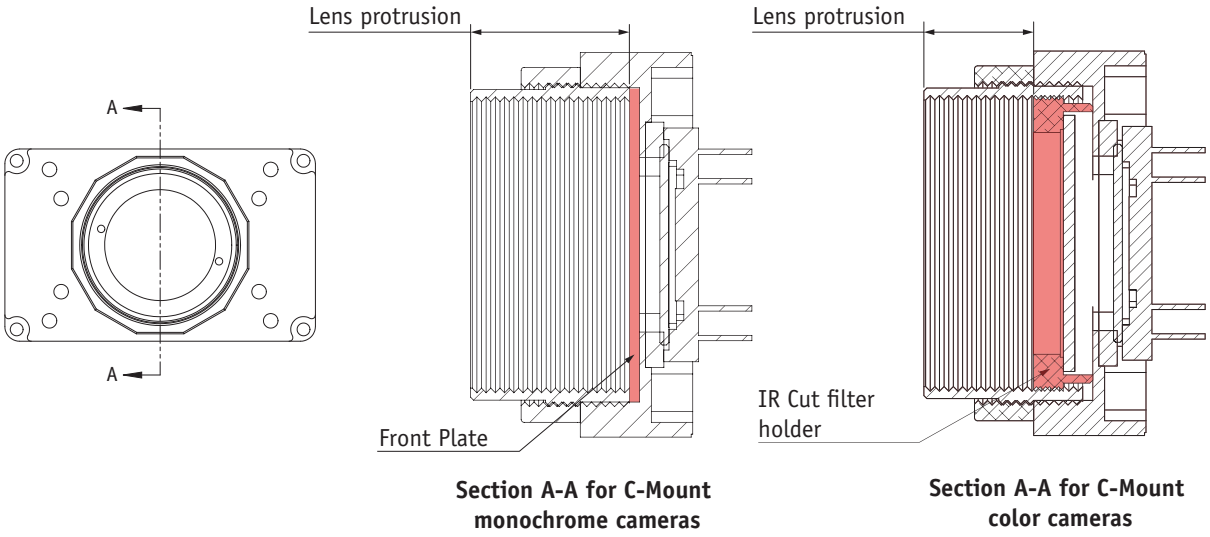


Figure 44: Cross section of typical Prosilica GT front assembly with C-Mount

Camera	Lens protrusion [mm]
GT1290	13.64
GT1290C	9.32
GT1380	13.64
GT1380C	9.64
GT1600	13.64
GT1600C	9.32
GT1660	13.64
GT1660C	9.43
GT1910	13.64
GT1910C	9.43
GT1920	13.64
GT1920C	9.27

Camera	Lens protrusion [mm]
GT2000	13.64
GT2000C	10.31
GT2050	13.64
GT2050C	10.31
GT2300	13.64
GT2300C	9.43
GT2450	13.64
GT2450C	9.27
GT2750	13.64
GT2750C	9.27
GT3400	13.64
GT3400C	9.27

Table 21: Lens protrusion for Prosilica GT cameras with C-Mount

F-Mount flange focal distance

Flange focal distance is the optical distance from the mounting flange to image sensor die. Prosilica GT F-Mount cameras are optically calibrated to a standard 46.5 mm optical flange focal distance.

Note

Information on **flange focal distance of Prosilica GT large format cameras with M42 / M58-Mount** is available here:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/Prosilica_GT/Technical-drawing/Prosilica_GT_Large_format_M42_and_M58-Mount.pdf

Adjustment of F-Mount

The F-Mount is adjusted at the factory and should not require adjusting. If for some reason the lens mount requires adjustment, use the following method.

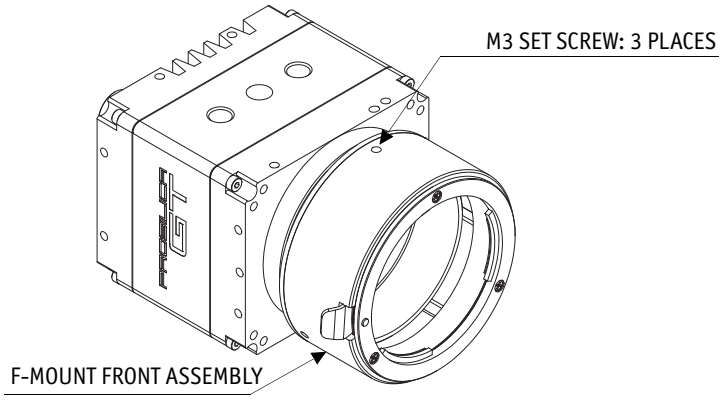


Figure 45: Prosilica GT large format with F-Mount isometric view

Attach F-Mount compatible lens

Use an F-Mount compatible lens that allows an infinity focus. Attach the lens to the camera using a counter-clockwise rotation of about a quarter turn. The lens should snap into place and the lens flange and camera flange should mate over the full circumference.

Loosen F-Mount front assembly

Use a 1.5mm hex wrench to loosen the 3 set screws then hold the F-Mount front assembly to the camera body.

Image to infinity

Set the lens to infinity and image a distant object—10 to 15 m should suffice. Gently move the F-Mount front until focused and lock it in place.

EF-Mount flange focal distance

Flange focal distance is the optical distance from the lens mounting flange to image sensor die. Prosilica GT1930L cameras with EF-Mount are calibrated to have < 70 µm (0.3°) Z-tilt and ±10 µm variation from standard 44 mm flange focal depth.

Adjustment of EF-Mount

Prosilica GT1930L cameras allow planarity adjustment of the EF lens mount relative to the camera sensor. Adjustment can be made for overall flange focal distance (Z distance), and planarity (Z-tilt). The following steps describe Z adjustment using a standard EF lens and a target. However, measurement tools such as an optical depth micrometer could also be used.

- Using an EF-Mount compatible lens, set the lens to infinity and image on a target, 10 to 15 m should suffice. Target should highlight focus levels at center image and at the corners of the image, as shown in figure 46. A lens with a long focal length, or adjustable zoom lens, will allow more precision for this operation and reduce the overall size of your target.

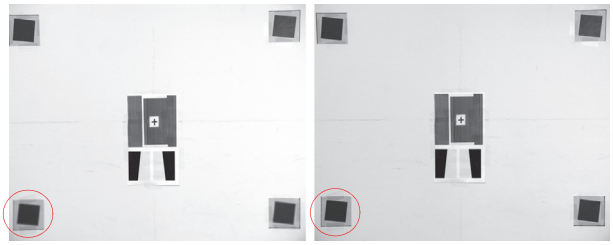


Figure 46: Target image - before (*left*) and after (*right*) Z adjustment

- Use a 1.5mm hex head screwdriver to loosen the bolts.
- Adjust the three adjustment screws, as indicated in figure 47, until all targets are in focus.
- Tighten the three bolts and recheck the focus.

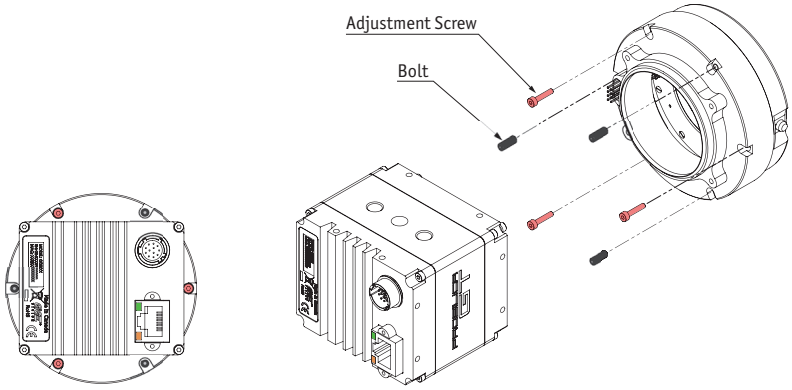


Figure 47: Back view (*left*) and exploded view (*right*) of Prosilica GT1930L camera assembly showing the adjustment screws and bolts in the EF-Mount

Camera interfaces

This chapter provides information on Gigabit Ethernet port, inputs and outputs, and trigger features.

www

Accessories:
Please contact Allied Vision sales representative or your local Allied Vision dealer for information on accessories:
http://www.alliedvision.com/en/about-us/where-we-are.html

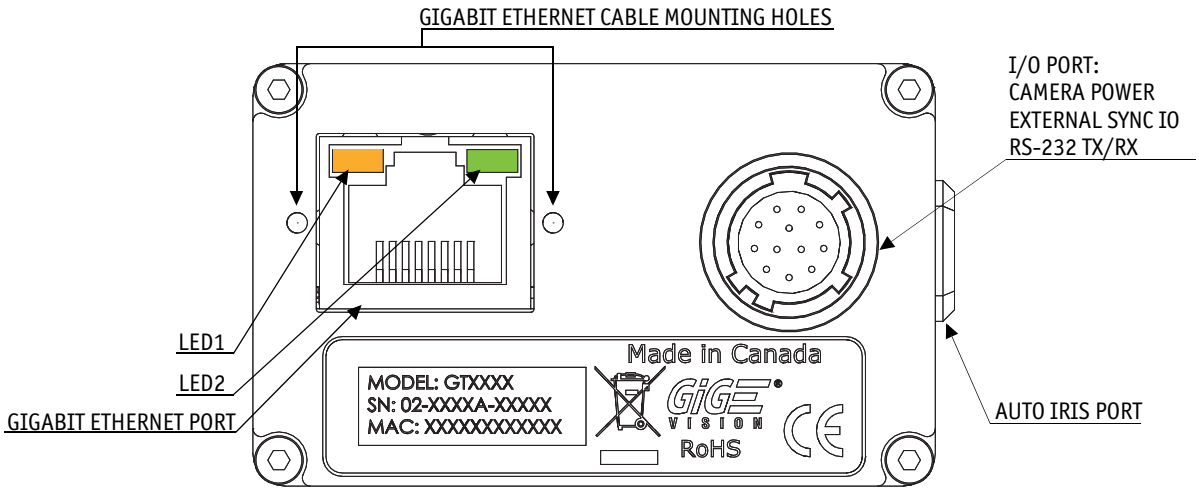


Figure 48: Prosilica GT connection ports

Status LEDs

The color of the LEDs has the following meaning:

	LED Color	Status
LED1	Flashing/solid orange	Ethernet activity
LED2	Flashing green	Camera is powered
	Solid green	Camera is booted, and link with the host is established

Table 22: Status of LEDs in Prosilica GT

Note

Once the camera is booted, LED2 will remain solid green as long as the camera is powered, even if connection with the host is lost.

Gigabit Ethernet port

The Prosilica GT is powered through the 12-pin Hirose Camera I/O port, or the Gigabit Ethernet port by using any standard Power over Ethernet (PoE) supported network card, switch, or injector. Allied Vision recommends using Category 6 or higher compatible cabling for best performance.

www

The **GigE Installation Manual** offers detailed instructions for using Prosilica GT cameras.

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/installation-manual/GigE_Installation_Manual.pdf

www

See **Hardware Selection for Allied Vision GigE Cameras** application note for a list of recommended Ethernet adapters:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/Hardware_Selection_for_Allied_Vision_GigE_Cameras.pdf

Note

A standard Ethernet adapter is available for purchase from Allied Vision:
P/N: 02-3002A
Model: Intel Pro 1000/PT

A dual port PoE Ethernet adapter is available for purchase from Allied Vision:
P/N: 2685
Model: Adlink GIE62+

Note

Cable lengths up to 100 m are supported.

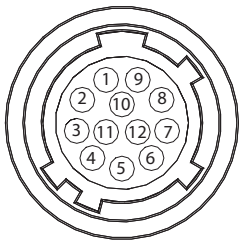
The 8-pin RJ-45 jack has the pin assignment according to the Ethernet standard (IEEE 802.3 1000BASE-T).

Note

Prosilica GT cameras support cables with horizontal locking screw connector for a secured connection (see figure 48).

Allied Vision recommends using locking-screw cables from Components Express, Inc. for a perfect fit. Visit the CEI product configurator to customize the cable according to your needs.

Camera I/O connector pin assignment



Pin	Signal	Direction	Level	Description
1	Camera GND	In	GND for RS232 and ext. power	Ground for camera power supply, and RS-232
2	Camera Power	In	7–25 VDC	Camera power supply
3	Out 4	Out	Open emitter max. 20 mA	Opto-isolated Output 4 (SyncOut4)
4	In 1	In	LVTTL max. 3.3 V	Non-isolated Input 1 (SyncIn1)
5	Out 3	Out	Open emitter max. 20 mA	Opto-isolated Output 3 (SyncOut3)
6	Out 1	Out	3.3 V LVTTL max. 50 µA	Non-isolated Output 1 (SyncOut1)
7	Isolated IO GND	In/Out	Common GND for In/Out	Isolated input and output signal ground
8	RxD RS-232	In	RS-232	Terminal receive data
9	TxD RS-232	Out	RS-232	Terminal transmit data
10	Isolated Out Power	In	Common VCC for outputs 5–24 VDC	Power input for opto-isolated outputs
11	In 2	In	U_{in}(high) = 5–24 V U_{in}(low) = 0–0.8 V	Input 2 opto-isolated (SyncIn2)
12	Out 2	Out	3.3 V LVTTL max. 50 µA	Non-isolated Output 2 (SyncOut2)

Figure 49: Camera I/O connector pin assignment

The General Purpose I/O port uses a Hirose HR10A-10R-12PB connector on the camera side. The mating cable connector is Hirose HR10A-10P-12S.

Note

The cable side Hirose connector is available for purchase from Allied Vision.

P/N: K7600040 or 02-7002A

I/O definition

Camera Power

The Prosilica GT camera can be powered through the Hirose I/O port, via Pin 1 **Camera GND** and Pin 2 **Camera Power**, or through the Gigabit Ethernet port if using a power over Ethernet (PoE) supported network card, switch, or injector.

Cameras powered by both the Hirose I/O port and the Gigabit Ethernet port will use the power provided by Hirose I/O port only.

Pin 2, **Camera Power,** supports an input voltage range of 7–25 VDC. The camera will not power in reverse polarity. Exceeding the 25 V will damage the camera.

Note

A 12 V power adapter with Hirose connector is available for purchase from Allied Vision:

- P/N 02-8003A North America Supply
- P/N 02-8004A Universal Supply

Isolated IO ground

The **Isolated IO GND** connection provides the user ground reference and return path for **In 2**, **Out 3**, and **Out 4**. It is recommended that the ground wiring be physically close to the **In/Out** wiring to prevent parasitic coupling. For example, a good cable design connects **In 2** to one conductor of a twisted pair, **Isolated IO GND** to the second conductor of the same twisted pair.

RxD RS-232 and TxD RS-232

These signals are RS-232 compatible. These signals are not optically isolated. Tie RS-232 ground to **Camera GND** to complete the RS-232 circuit. Communication is at 11520 baud.

www

For complete RS-232 description and usage, see:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/RS-232_Port_GigE_Cameras.pdf

Isolated Out Power

The **Isolated Out Power** connection provides power for isolated signals **Out 3** and **Out 4**. The voltage requirement is 5–24 VDC. The current requirement for this supply is a function of the optical isolator collector current and the number of outputs used in the system. **Isolated Out Power** wiring should be physically close to **Out 3** / **Out 4** wiring to prevent parasitic coupling.

Input triggers

Input triggers allow the camera to be synchronized to an external event. The camera can be programmed to trigger on the rising edge, falling edge, both edges, or level of the signal. The camera can also be programmed to capture an image at some programmable delay time after the trigger event.

In 1 – Non-isolated

In 1 is not electrically isolated and can be used when environmental noise is inconsequential and faster trigger response is required. The required trigger signal is **low voltage TTL 3.3 V.** Tie trigger ground to **Camera GND** to complete the trigger circuit.

Caution **Exceeding 5.1 V on *In 1* can permanently damage the camera**

In 2 – Opto-isolated

In 2 is optically isolated and can be used in electrically noisy environments to prevent false trigger events. Tie trigger ground to **Isolated IO GND** to complete the trigger circuit. Compared to the non-isolated trigger, **In 2** has a longer propagation time. It can be driven from **5 to 24 V** with a **minimum current source of 5 mA**.

Output signals

Output signals can be assigned to a variety of internal camera signals via software. They can be configured to active high or active low. The internal camera signals are listed as follows:

Exposing	Corresponds to when camera is integrating light.
Trigger Ready	Indicates when the camera is ready to accept a trigger signal.
Trigger Input	A relay of the trigger input signal used to “daisy chain” the trigger signal for multiple cameras.
Readout	Valid when camera is reading out data.
Imaging	Valid when camera is exposing or reading out.
Strobe	Programmable pulse based on one of the above events.
GPO	User programmable binary output.

Out 1 and 2 – Non-isolated

Out 1 and **Out 2** signals are not electrically isolated and can be used when environmental electrical noise is inconsequential and faster trigger response is required. Tie signal ground to **Camera GND** to complete the external circuit. The output signal is a **low voltage TTL, maximum 3.3 V. Not suitable for driving loads in excess of 50 µA.**

Out 3 and 4 – Opto-isolated

Out 3 and **Out 4** signals are optically isolated and require the user to provide a voltage level, **Isolated Out Power**. Tie signal ground to **Isolated IO GND** to complete the external circuit. **Isolated Out Power** can be configured between **5–24 V**. An example of the functional circuit is indicated in the following diagram.

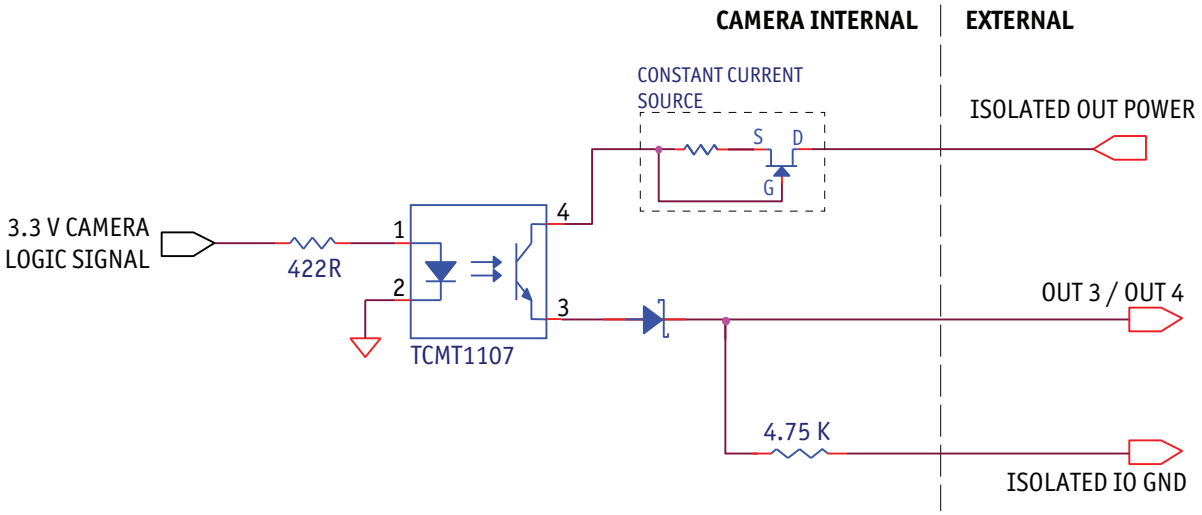
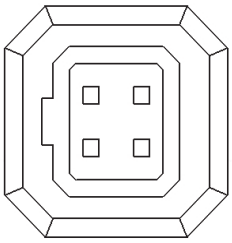


Figure 50: Prosilica GT **Out 3** / **Out 4** trigger circuit

Lens control

Prosilica GT standard and extended cameras



Prosilica GT standard and extended cameras can be used with C-/CS-Mount auto iris lenses of DC type, and P-Iris type.

Both DC and P-Iris lens types use the same standard connector, shown left, located on the side of the camera. Lens type is automatically determined by the camera on power-up. Connecting the lens after the camera is powered will not damage the lens, but it will not be recognized by the camera; therefore, the relevant camera control attributes will not function. If this occurs, disconnect and reconnect the camera power supply.

Note

Video-type auto iris lenses are not supported.

Motorized CCTV lenses are not supported.

*****Read lens descriptions carefully before purchasing*****

For example, a “motorized iris lens” may be a bipolar single axis motorized lens, and not a DC auto iris or P-Iris lens

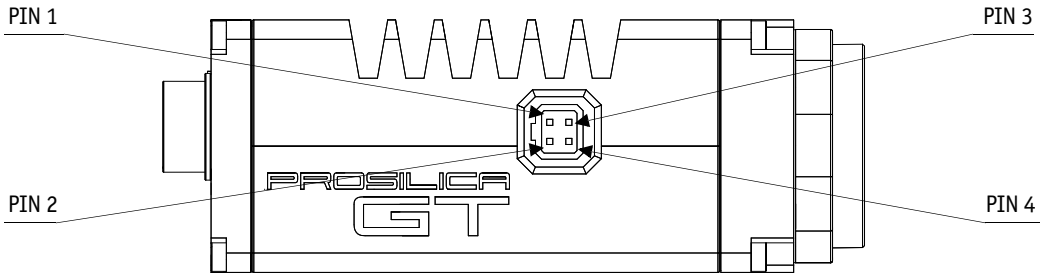


Figure 51: Prosilica GT lens control port

DC AutoIris Mode				P-Iris Mode			
PIN NUMBER	PIN FUNCTION	VOLTAGE	MAX CURRENT	PIN NUMBER	PIN FUNCTION	VOLTAGE	MAX CURRENT
1	Damp – (input)	N/A	N/A	1	Coil 1 A (output)	0 V or 3.3 V	200 mA
2	Damp + (input)	N/A	N/A	2	Coil 2 A (output)	0 V or 3.3 V	200 mA
3	Drive + (output)	3.3 V	50 mA	3	Coil 2 B (output)	0 V or 3.3 V	200 mA
4	Drive – (output)	0–3.3 V	50 mA	4	Coil 1 B (output)	0 V or 3.3 V	200 mA

Table 23: Lens control port wiring

DC-Iris lenses

The Prosilica GT standard and extended cameras operate with any standard DC-type auto iris lens. Allied Vision tested lenses include Fujinon DV10x8SA-SA1L, Computar HG2Z0414FC-MP, and Pentax C61227DCPS.

DC-type auto iris lenses are continuously driven by a voltage (0–3.3 V) from the camera lens control port. This voltage level determines whether the lens opens or closes, and is calculated based on the applicable iris camera attributes.

Operation

1. Connect a DC-Iris lens to the camera before powering up the camera.
2. Power up camera, and open camera control software.
3. Set camera to live image with desired *ExposureValue* and *GainValue* attributes.
4. Set *IrisMode* = **DCIris**. Camera uses an automatic algorithm to determine correct lens iris position based on the *IrisVideoLevel* attribute.
5. If lens operation is too slow or oscillates, see *LensDCDriveStrength*.

www

DC-Iris controls are described further in the following documents:

PvAPI users: GigE Camera and Driver Attributes document

VIMBA and third-party software users: GigE Features Reference document

P-Iris lenses

P-Iris (Precise iris) lenses allow the camera to adjust to an exact F-number without drift, through the usage of a stepper motor. The host system knows the exact position of the iris at all times, allowing for a closed loop feedback system.

Operation

1. Connect a P-Iris lens to the camera before powering up the camera.
2. Power up camera, and open camera control software.
3. Set camera to live image with desired *ExposureValue* and *GainValue* attributes.
4. Set *LensPIrisFrequency* as specified by lens documentation, or in supported P-Iris lens list, as described in the next section. All P-Iris lenses tested thus far operate well between [100-200].
5. Set *LensPIrisNumSteps* as specified by lens documentation, or in supported P-Iris lens list, as described in the next section.
6. Set *IrisMode* attribute to **PIrisAuto** or **PIrisManual**. **PIrisAuto** uses an automatic algorithm to determine correct *LensPIrisPosition* based on the *IrisVideoLevel* attribute. **PirisManual** allows manual control of *LensPIrisPosition*.

www

P-Iris controls are described further in the following documents:

PvAPI users: GigE Camera and Driver Attributes document

VIMBA and third-party software users: GigE Features Reference document

www

For a list of P-Iris supported lenses, along with their ***LensPIrisFrequency*** and ***LensPIrisNumSteps*** specifications:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/P-iris_Lenses_Supported_by_Prosilica_GT_Cameras.pdf

Prosilica GT large format cameras

Electro-Focus (EF) lens control is available on the Prosilica GT1930L cameras. EF lens control allows focus and aperture control via host software.

www

See **Modular Concept** for information on lens mount options available with Prosilica GT large format cameras:

http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/modular-concept/Modular_concept_external.pdf

Operation

- Connect an EF lens to the camera before powering up the camera.
- Power up camera, and open camera control software.

Caution

The max power supplied via PoE is 13 W. EF lens power requirements will vary from lens to lens; however, typical ratings are in the 3–4 W range.

Should your lens + camera power requirements exceed 13 W, it will be necessary to power the camera via Hirose.

- Use *EFLensInitialize* command to initialize the EF lens. This command is automatically executed on power up and/or when lens is attached to camera.
- Adjust the focus and aperture using *EFLensFocus* and *EFLensFStop* controls, respectively.
- If lens does not operate as expected, see *EFLensState* and *EFLensLastError*.

www

EF lens controls are described further in ***EFLensControl*** section of following documents:

PvAPI users: GigE Camera and Driver Attributes document

VIMBA and third-party software users: GigE Features Reference document

Camera trigger

Input: Non-isolated and opto-isolated internal circuit

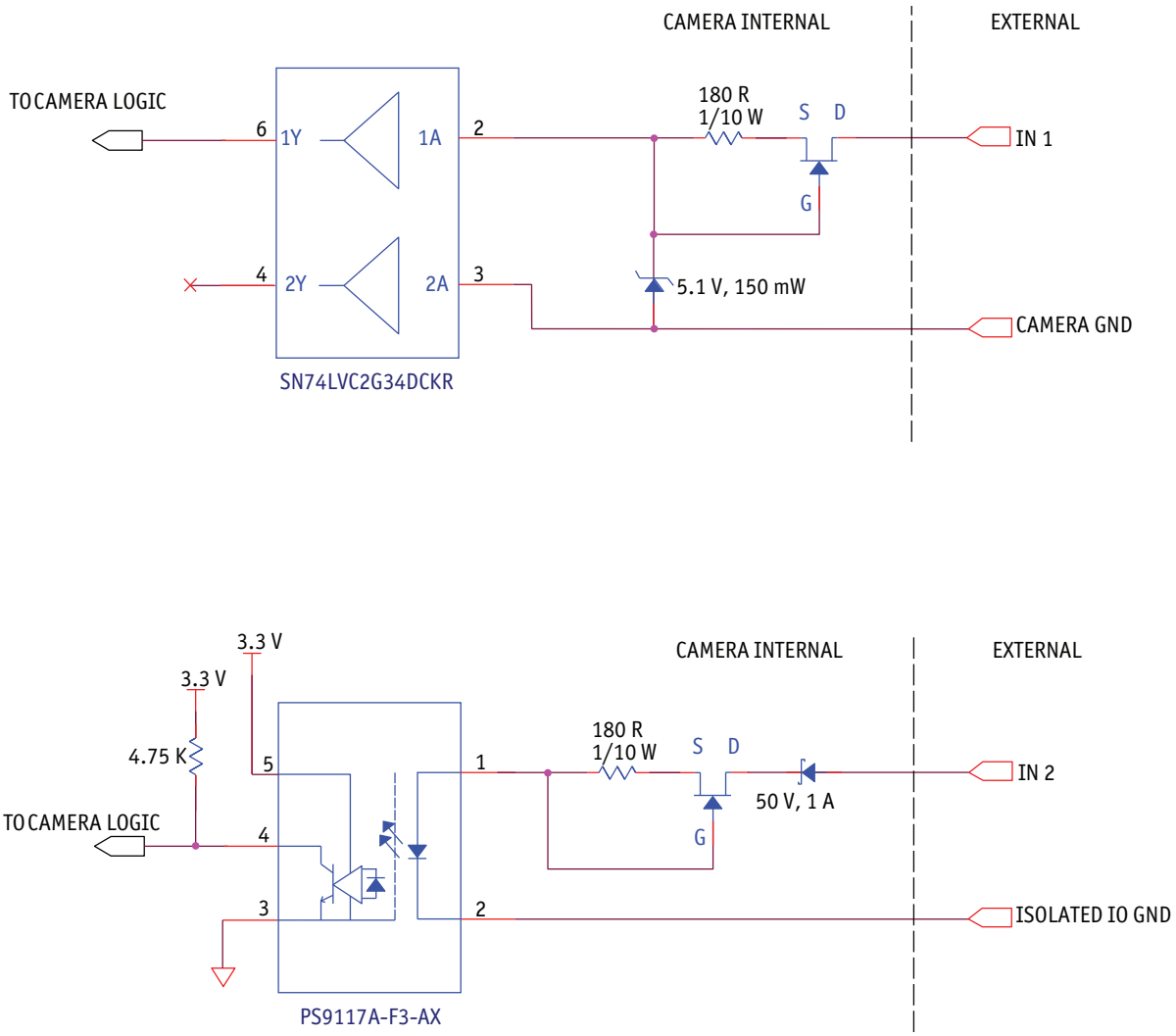


Figure 52: Prosilica GT **internal** circuit diagram for input trigger

Output: Non-isolated internal circuit

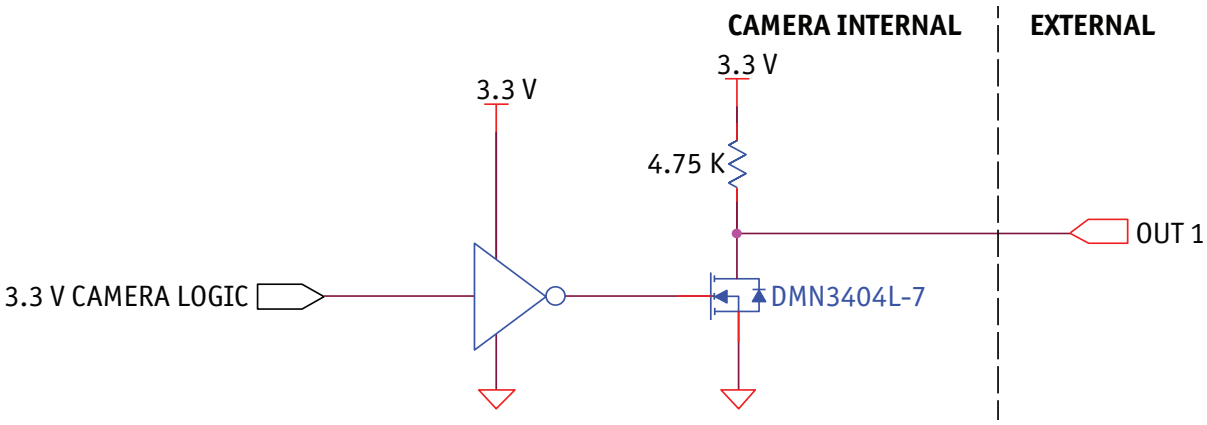


Figure 53: Prosilica GT **internal** circuit diagram for non-isolated output trigger

Output: Opto-isolated internal circuit

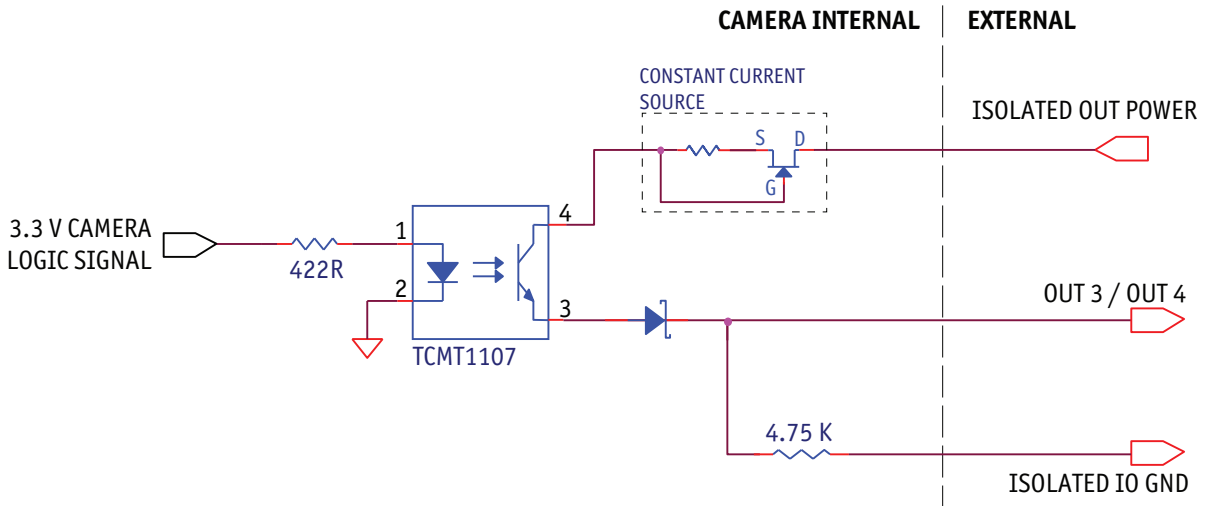


Figure 54: Prosilica GT **internal** circuit diagram for opto-isolated output trigger

Trigger timing diagram

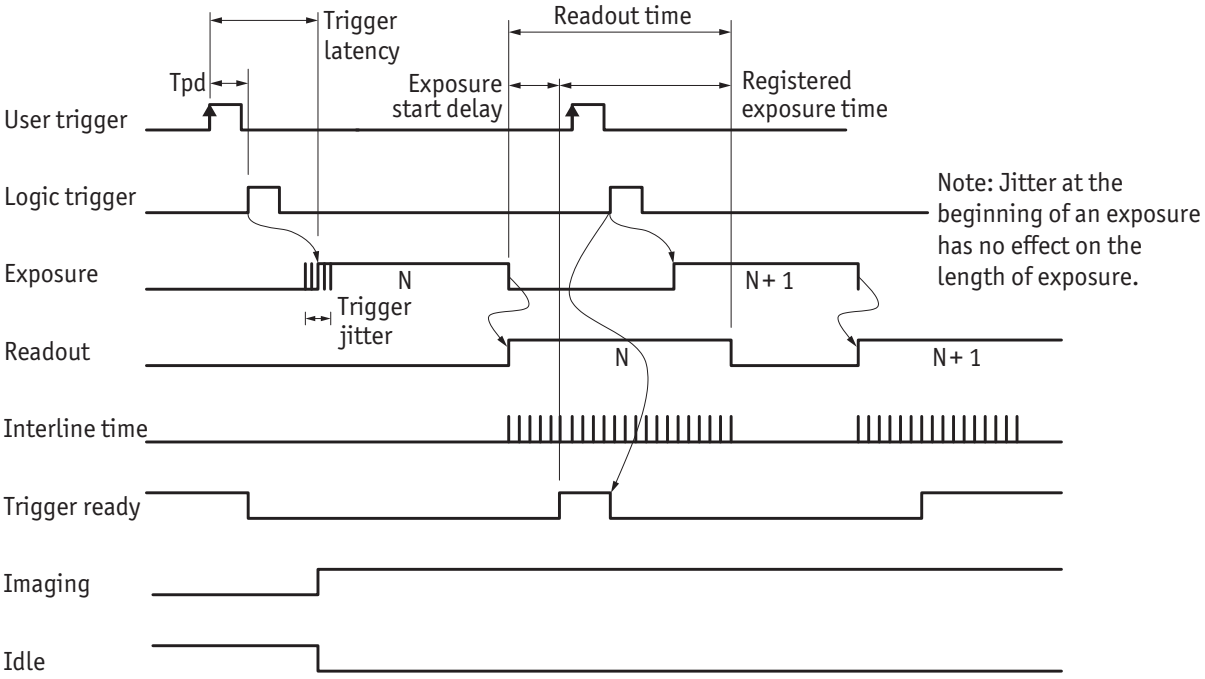


Figure 55: Prosilica GT internal signal timing waveforms

Notes on triggering

Term	Definition
User trigger	Trigger signal applied by the user (hardware trigger, software trigger)
Logic trigger	Trigger signal seen by the camera internal logic (not visible to the user)
Tpd	Propagation delay between the user trigger and the logic trigger
Exposure	High when the camera image sensor is integrating light
Readout	High when the camera image sensor is reading out data
Trigger latency	Time delay between the user trigger and the start of exposure
Trigger jitter	Error in the trigger latency time

Table 24: Explanation of signals in timing diagram

Term	Definition
Trigger ready	Indicates to the user that the camera will accept the next trigger
Registered exposure time	Exposure time value currently stored in the camera memory
Exposure start delay	Registered exposure time subtracted from the readout time and indicates when the next exposure cycle can begin such that the exposure will end after the current readout
Interline time	Time between sensor row readout cycles
Imaging	High when the camera image sensor is either exposing and/or reading out data
Idle	High if the camera image sensor is not exposing and/or reading out data

Table 24: Explanation of signals in timing diagram

Trigger rules

Note

The **user trigger pulse width** should be at least three times the width of the trigger latency as indicated in chapter *Specifications* on page 14.

- The **end of exposure** will always trigger the next readout.
- The **end of exposure** must always end after the current readout.
- The **start of exposure** must always correspond with the interline time if readout is true.
- **Exposure start delay** equals the readout time minus the registered exposure time.

Triggering during the idle state

For applications requiring the shortest possible *Trigger Latency* and the smallest possible *Trigger Jitter* the *User Trigger* signal should be applied when *Imaging* is false and *Idle* is true. In this case, *Trigger Latency* and *Trigger Jitter* are as indicated in the camera **Specifications** section.

Triggering during the readout state

For applications requiring the fastest triggering cycle time whereby the camera image sensor is exposing and reading out simultaneously, apply the *User Trigger* signal as soon as a valid *Trigger Ready* is detected. In this case, *Trigger Latency* and *Trigger Jitter* can be up to 1 row time since *Exposure* must always begin on an *Interline* boundary.

Firmware update

Firmware updates are carried out via the GigE connection. Allied Vision provides an application for all Prosilica GT cameras that loads firmware to the camera using a simple interface. New feature introductions and product improvements motivate new firmware releases. All users are encouraged to use the newest firmware available and complete the firmware update if necessary.

www

Download the latest GigE firmware loader from the Allied Vision website:
http://www.alliedvision.com/en/support/firmware

www

For more information on GigE firmware update:
http://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/GigE_Firmware_Update.pdf

Resolution and ROI frame rates

This section charts the resulting frame rate from changing sensor height from full image to a single line.

Unless otherwise noted, sensors do not give an increase in readout speed with a reduction in width. However, in cases where a camera is limited by frame rate due to bandwidth restrictions, a reduction in width will give a frame rate increase. Cameras with a "burst mode" frame rate (see chapter *Specifications* on page 14) are able to output more data than the maximum available bandwidth (124 MB/s), and will see a frame rate increase with a reduction in width.

Note

- Data was generated using **StreamBytesPerSecond = 124 MB/s** (full bandwidth) and an 8-bit pixel format. Frame rates may be lower if using network hardware incapable of 124 MB/s.
- For maximum speed advantage on quad-tap CCD sensors, **ROIs are center image**, where feature **OffsetY = (full sensor height – ROI height)/2**.
- There is no frame rate increase with reduced width.
- **BinningVertical** is horizontal row summing on CCD before readout. The frame rate for an ROI at the same effective height as binning will be slower because the CCD still needs to read out the "fast readout rows" in ROI mode.

Prosilica GT1290

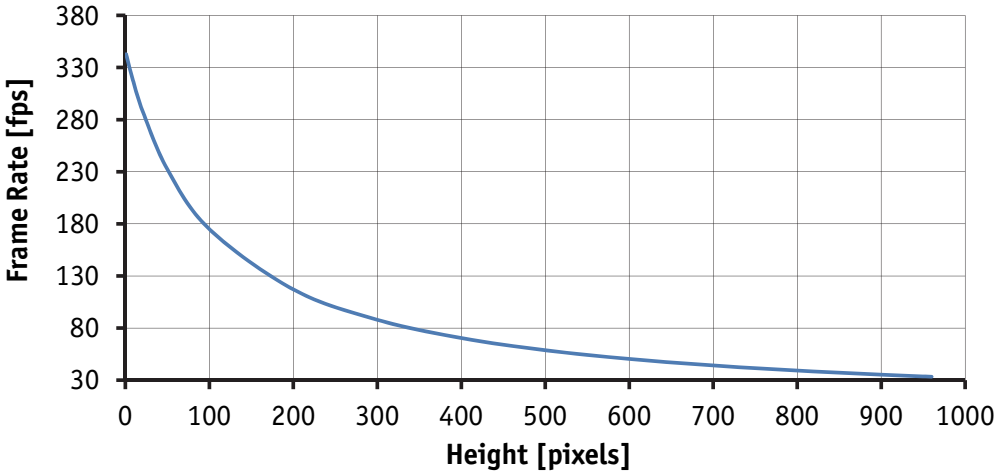


Figure 56: Frame rate vs. height for GT1290

Height	[1]Width	Frame rate
960	1280	33.3
900	1280	35.3
800	1280	39.2
700	1280	44.1
600	1280	50.4
500	1280	58.8
400	1280	70.5
300	1280	88.0
200	1280	117.1
100	1280	175.0
50	1280	232.4
20	1280	289.5
10	1280	315.2
5	1280	329.9
2	1280	339.4
1	1280	342.7

[2]BinningY	Height	Width	Frame rate
2	480	1280	60.8
3	320	1280	83.8
4	240	1280	103.3
5	192	1280	120
6	160	1280	134.5
7	137	1280	147.2
8	120	1280	158.3
9	106	1280	168.7
10	96	1280	176.9
11	87	1280	185.1
12	80	1280	191.9
13	73	1280	199.2
14	68	1280	204.8

[1]There is no frame rate increase with reduced width.

[2]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1380

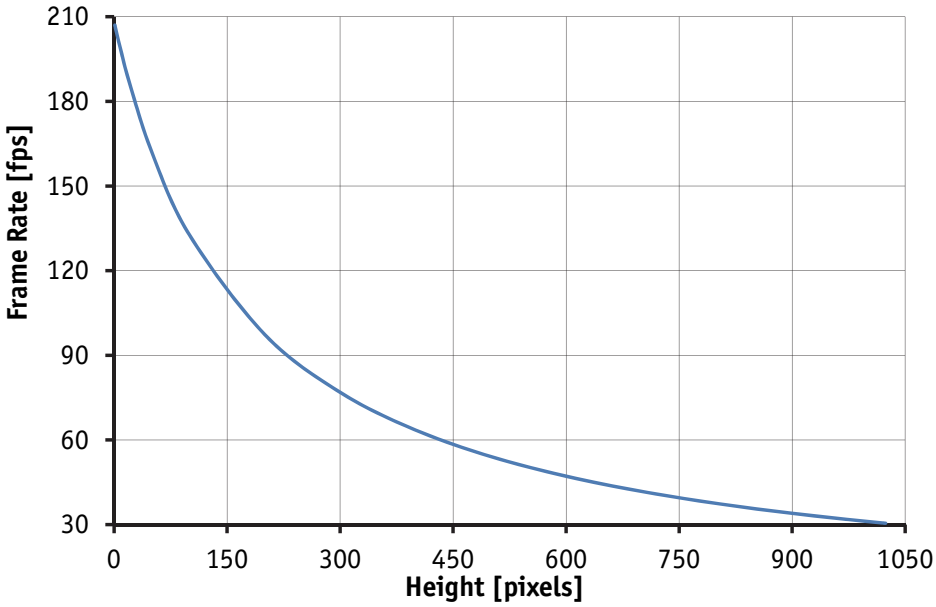


Figure 57: Frame rate vs. height for GT1380

Height	[1]Width	Frame rate
1024	1360	30.5
1000	1360	31.1
900	1360	34.0
800	1360	37.5
700	1360	41.8
600	1360	47.2
500	1360	54.1
400	1360	63.5
300	1360	76.9
200	1360	97.4
100	1360	132.7
50	1360	162.1
20	1360	186.9
10	1360	197.0
5	1360	202.5
2	1360	205.9
1	1360	207.0

[2]BinningY	Height	Width	Frame rate
2	512	1360	53.2
3	341	1360	70.7
4	256	1360	84.6
5	204	1360	96.0
6	170	1360	105.4
7	146	1360	113.1
8	128	1360	119.6
9	113	1360	125.6
10	102	1360	130.4
11	93	1360	134.6
12	85	1360	138.5
13	78	1360	142.1
14	73	1360	144.7

[1]There is no frame rate increase with reduced width.

[2]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1600

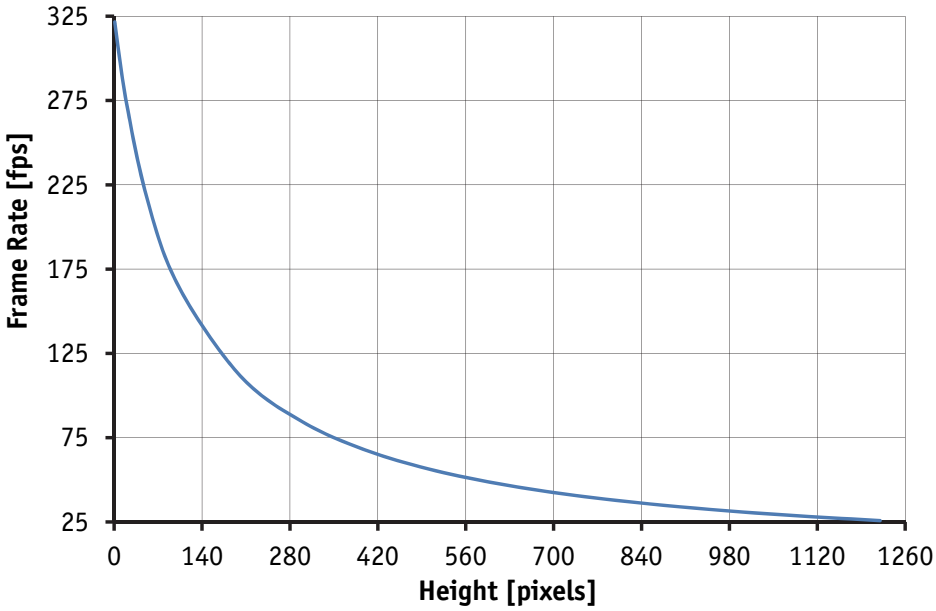


Figure 58: Frame rate vs. height for GT1600

Height	[1]Width	Frame rate
1220	1620	25.8
1100	1620	28.4
1000	1620	31.0
900	1620	34.0
800	1620	37.8
700	1620	42.5
600	1620	48.5
500	1620	56.5
400	1620	67.7
300	1620	84.4
200	1620	112.1
100	1620	166.6
50	1620	220.2
20	1620	272.9
10	1620	296.5
5	1620	310.0
2	1620	318.6
1	1620	321.6

[2]BinningY	Height	Width	Frame rate
2	610	1620	47.9
3	406	1620	66.9
4	305	1620	83.3
5	244	1620	97.8
6	203	1620	110.7
7	174	1620	122.1
8	152	1620	132.4
9	135	1620	141.2
10	122	1620	149.6
11	110	1620	157.7
12	101	1620	164.4
13	93	1620	170.9
14	87	1620	176.0

[1]There is no frame rate increase with reduced width.

[2]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1660

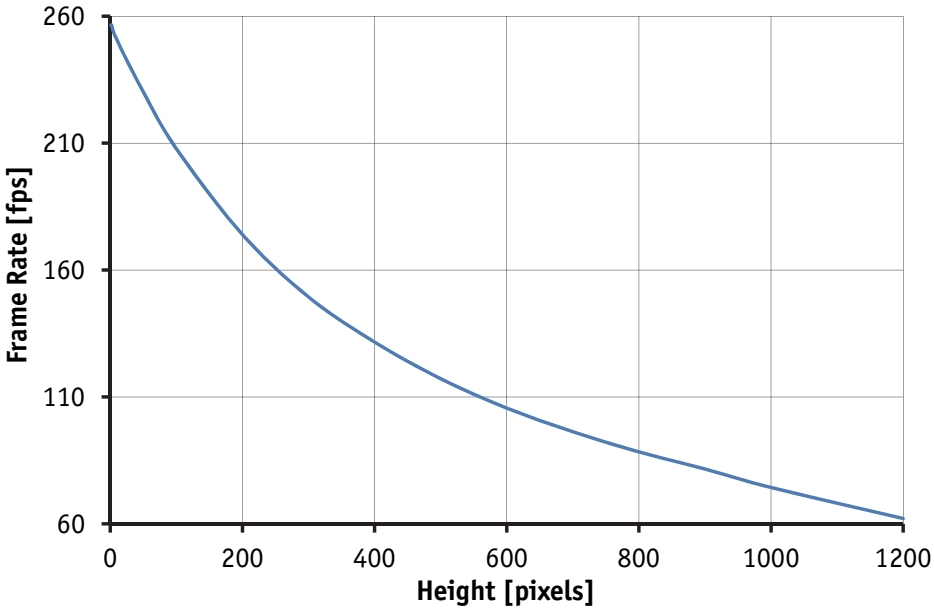


Figure 59: Frame rate vs. height for GT1660

Height	[1]Width	[2]RegionY	Frame rate
1200	1600	0	62.1
1000	1600	100	74.3
900	1600	150	81.6
800	1600	200	88.4
700	1600	250	96.3
600	1600	300	105.6
500	1600	350	117.2
400	1600	400	131.6
300	1600	450	149.4
200	1600	500	174.0
100	1600	550	207.8
50	1600	575	230.2
20	1600	590	245.3
10	1600	595	250.8
5	1600	598	253.6
2	1600	599	256.5
1	1600	600	256.5

[3]BinningY	Height	Width	Frame rate
2	600	1600	121
3	400	1600	165.4
4	300	1600	202.8
5	240	1600	234.2
6	200	1600	260.8
7	170	1600	284.0
8	150	1600	303.1

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1910

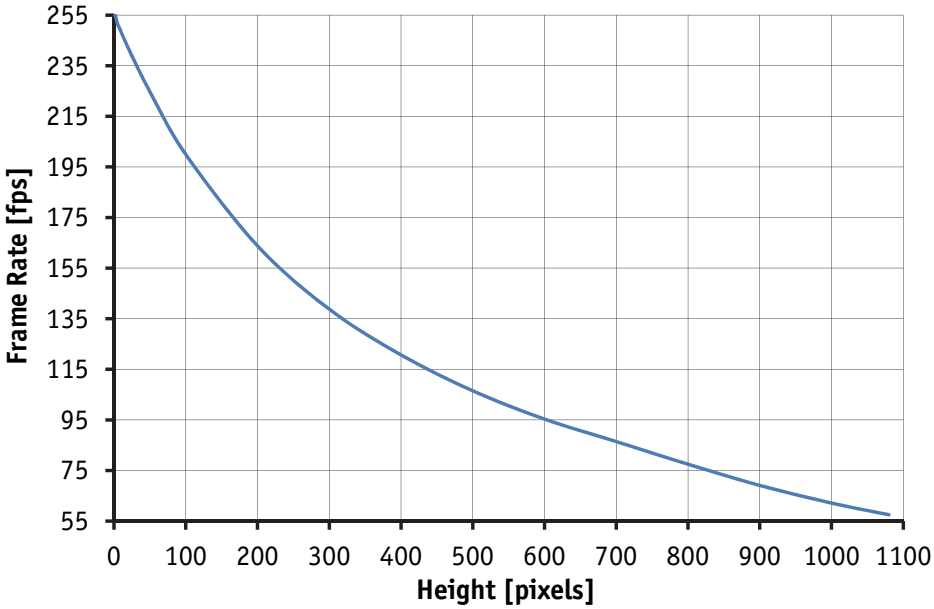


Figure 60: Frame rate vs. height for GT1910

Height	[1]Width	[2]RegionY	Frame rate
1080	1920	0	57.5
1000	1920	40	62.1
900	1920	90	69.1
800	1920	140	77.5
700	1920	190	86.4
600	1920	240	95.3
500	1920	290	106.5
400	1920	340	120.7
300	1920	390	138.8
200	1920	440	163.8
100	1920	490	199.9
50	1920	515	224.7
20	1920	530	241.9
10	1920	535	248.3
5	1920	538	251.4
2	1920	539	254.8
1	1920	540	254.8

[3]BinningY	Height	Width	Frame rate
2	540	1920	114.1
3	360	1920	160.8
4	270	1920	198.5
5	216	1920	230.7
6	180	1920	258.3
7	154	1920	282.4
8	134	1920	302.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1920

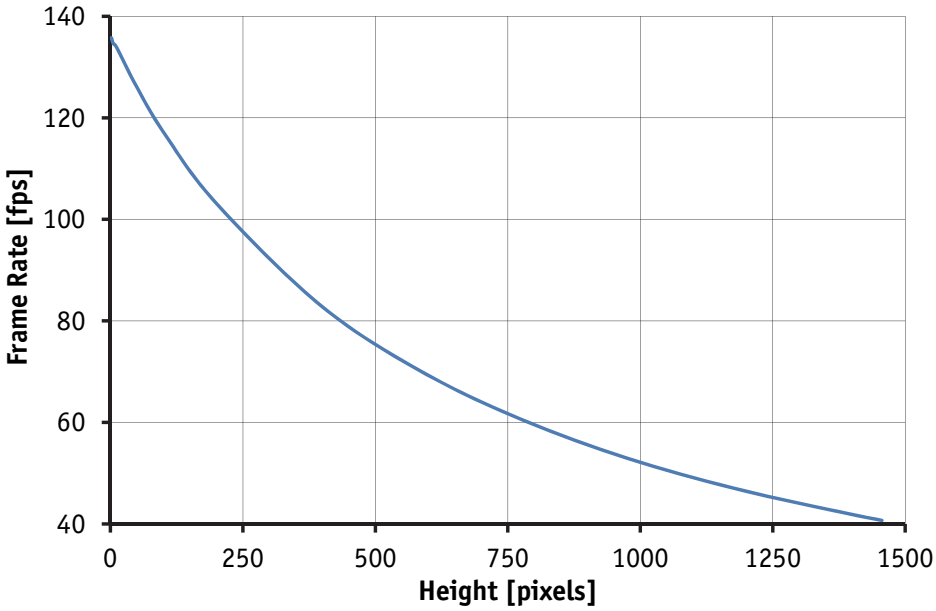


Figure 61: Frame rate vs. height for GT1920

Height	[1]Width	[2]RegionY	Frame rate
1456	1936	0	40.7
1400	1936	28	41.8
1200	1936	128	46.4
1000	1936	228	52.1
800	1936	328	59.5
600	1936	428	69.3
400	1936	528	82.8
200	1936	628	103.1
100	1936	678	117.2
50	1936	703	126.0
20	1936	718	132.2
10	1936	723	134.2
5	1936	726	134.7
2	1936	727	135.7
1	1936	728	135.7

[3]BinningY	Height	Width	Frame rate
2	728	1936	70.3
3	484	1936	92.8
4	364	1936	110.0
5	290	1936	124.1
6	242	1936	135.1
7	208	1936	144.1
8	182	1936	151.7

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT1930L

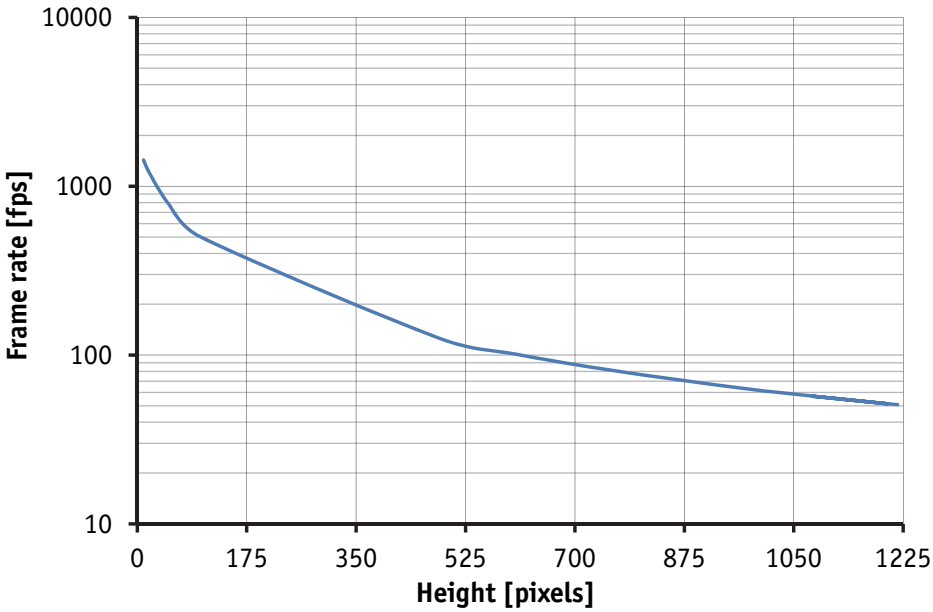


Figure 62: Frame rate vs. height for GT1930L

Height	* Width	Frame rate
1216	1936	50.7
1200	1936	51.4
1080	1936	57.0
1024	1936	60.0
960	1936	64.0
768	1936	80.1
600	1936	102.0
480	1936	126.9
100	1936	503.6
50	1936	787.0
20	1936	1187.2
10	1936	1429.4

*There will be an increase in frame rate with reduced width if the camera is bandwidth limited.

Prosilica GT2000

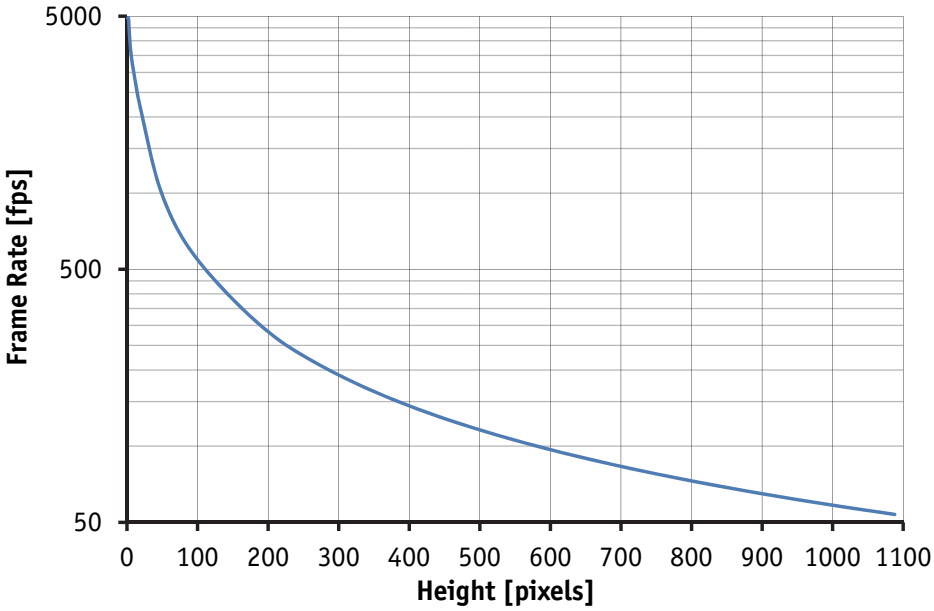


Figure 63: Frame rate vs. height for GT2000

Height	* Width	Frame rate
1088	2048	53.7
1000	2048	58.4
900	2048	64.8
800	2048	72.9
700	2048	83.2
600	2048	96.8
500	2048	115.9
400	2048	144.3
300	2048	191.2
200	2048	283.1
100	2048	545.3
50	2048	981.4
20	2048	2105.3
10	2048	2949.9
5	2048	3690.0
2	2048	4926.1
1	2048	4926.1

*There will be an increase in frame rate with reduced width if the camera is bandwidth limited.

Prosilica GT2050

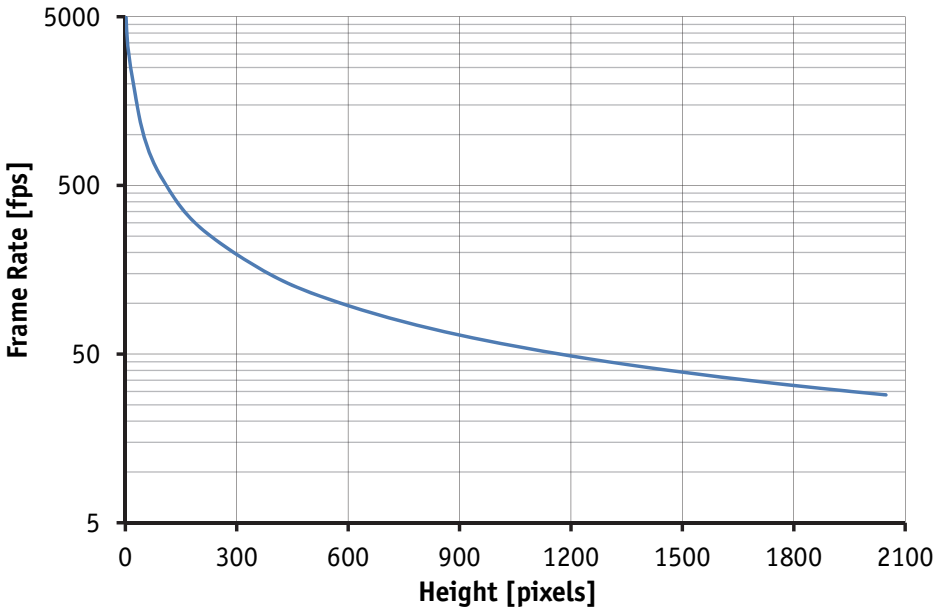


Figure 64: Frame rate vs. height for GT2050

Height	*Width	Frame rate
2048	2048	28.6
2000	2048	29.3
1800	2048	32.6
1600	2048	36.6
1400	2048	41.8
1200	2048	48.7
1000	2048	58.4
800	2048	72.9
600	2048	96.8
400	2048	144.3
200	2048	283.1
100	2048	545.3
50	2048	981.4
20	2048	2105.3
10	2048	2949.9
5	2048	3690.0
2	2048	4926.1
1	2048	4926.1

*There will be an increase in frame rate with reduced width if the camera is bandwidth limited.

Prosilica GT2300

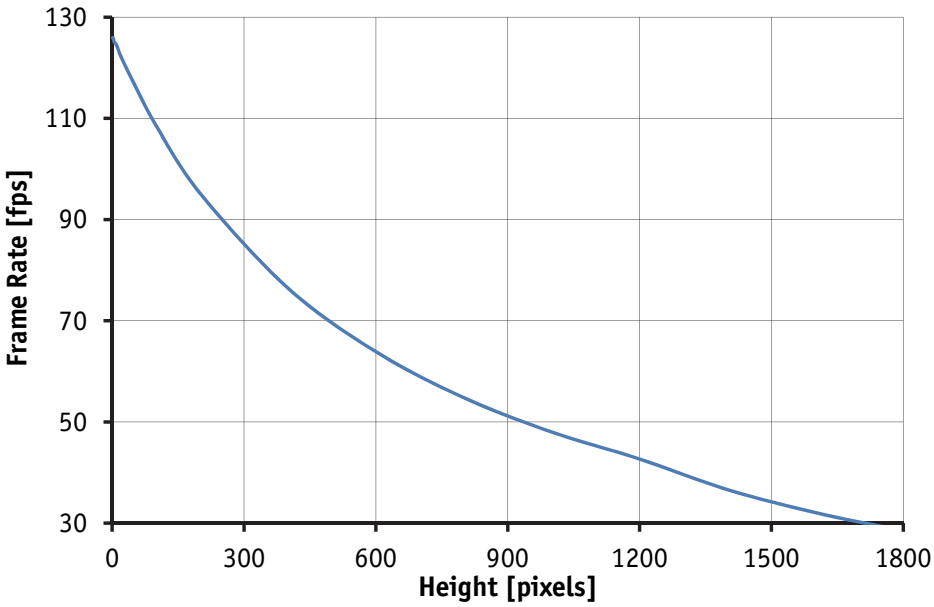


Figure 65: Frame rate vs. height for GT2300

Height	[1]Width	[2]RegionY	Frame rate
1752	2336	0	29.3
1600	2336	76	32.1
1400	2336	176	36.6
1200	2336	276	42.7
1000	2336	376	48.0
800	2336	476	54.8
600	2336	576	63.9
400	2336	676	76.4
200	2336	776	95.2
100	2336	826	108.6
50	2336	851	116.8
20	2336	866	122.2
10	2336	871	124.5
5	2336	874	125.1
2	2336	875	125.9
1	2336	876	125.9

[3]BinningY	Height	Width	Frame rate
2	876	2336	54.2
3	584	2336	80.8
4	438	2336	99.5
5	350	2336	115.0
6	292	2336	128.1
7	250	2336	139.5
8	218	2336	148.3

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT2450

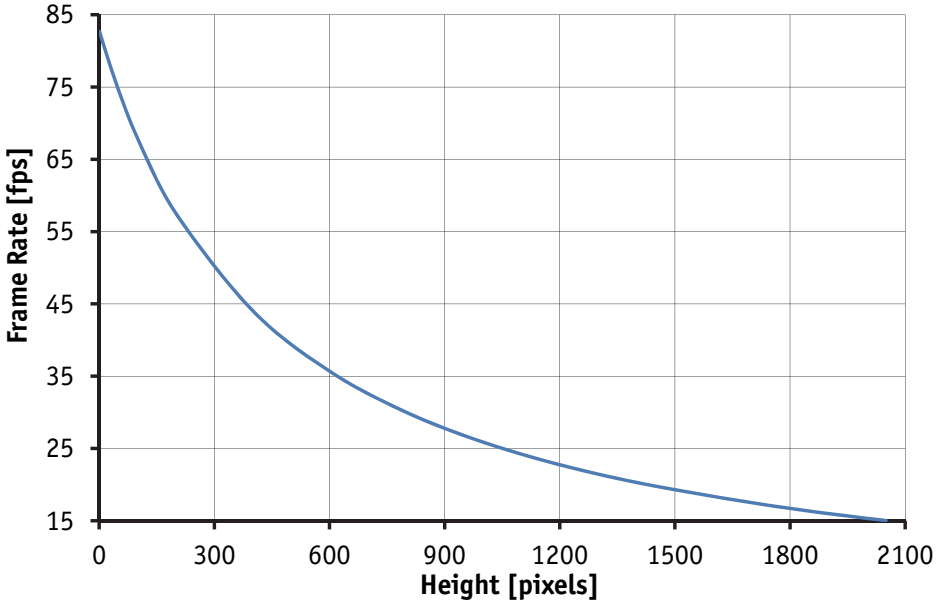


Figure 66: Frame rate vs. height for GT2450

Height	[1]Width	Frame rate
2050	2448	15.0
2000	2448	15.3
1800	2448	16.7
1600	2448	18.4
1400	2448	20.3
1200	2448	22.7
1000	2448	25.9
800	2448	30.0
600	2448	35.7
400	2448	44.1
200	2448	57.5
100	2448	67.9
50	2448	74.7
20	2448	79.4
10	2448	81.1
5	2448	82.0
2	2448	82.5
1	2448	82.7

[2]BinningY	Height	Width	Frame rate
2	1025	2448	25.4
3	683	2448	33.1
4	512	2448	38.9
5	410	2448	43.4
6	341	2448	47.1
7	292	2448	50.2
8	256	2448	52.7
9	227	2448	54.8
10	205	2448	56.6
11	186	2448	58.2
12	170	2448	59.6
13	157	2448	60.8
14	146	2448	61.8

[1]There is no frame rate increase with reduced width.

[2]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT2750

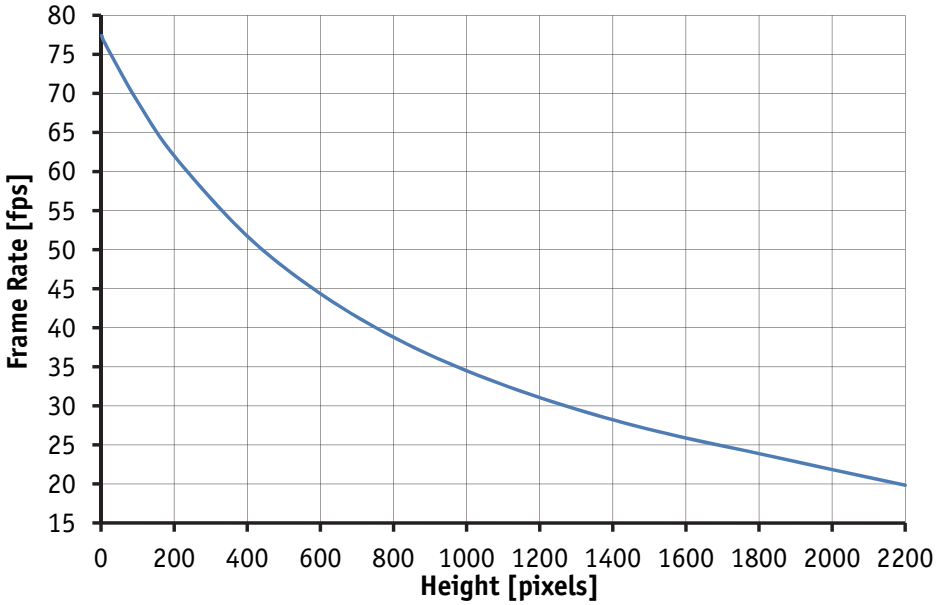


Figure 67: Frame rate vs. height for GT2750

Height	[1]Width	[2]RegionY	Frame rate
2200	2752	0	19.8
2000	2752	100	21.8
1800	2752	200	23.9
1600	2752	300	25.9
1400	2752	400	28.2
1200	2752	500	31.1
1000	2752	600	34.5
800	2752	700	38.8
600	2752	800	44.4
400	2752	900	51.7
200	2752	1000	62.0
100	2752	1050	68.9
50	2752	1075	73.0
20	2752	1090	75.6
10	2752	1095	76.5
5	2752	1098	76.9
2	2752	1099	77.4
1	2752	1100	77.4

[3]BinningY	Height	Width	Frame rate
2	1100	2752	37.0
3	732	2752	50.2
4	550	2752	60.9
5	440	2752	70.0
6	366	2752	77.4
7	314	2752	83.8
8	274	2752	88.9

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT3300

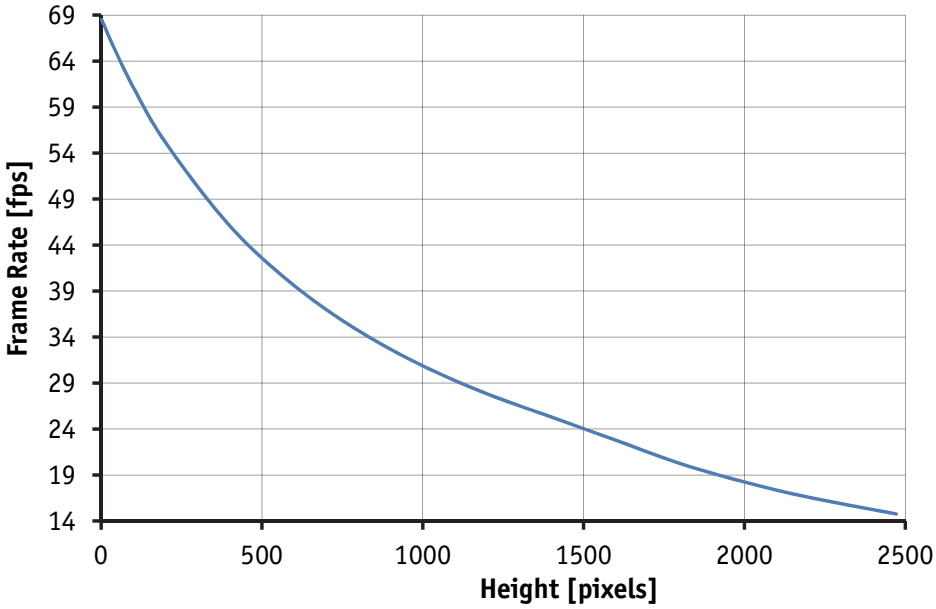


Figure 68: Frame rate vs. height for GT3300

Height	[1]Width	[2]RegionY	Frame rate
2472	3296	0	14.8
2200	3296	136	16.6
2000	3296	236	18.2
1800	3296	336	20.2
1600	3296	436	22.8
1400	3296	536	25.3
1200	3296	636	27.8
1000	3296	736	30.9
800	3296	836	34.7
600	3296	936	39.6
400	3296	1036	46.1
200	3296	1136	55.2
100	3296	1186	61.2
50	3296	1211	64.7
20	3296	1226	67.0
10	3296	1231	67.9
5	3296	1234	68.2
2	3296	1235	68.5
1	3296	1236	68.5

[3]BinningY	Height	Width	Frame rate
2	1236	3296	29.4
3	824	3296	43.1
4	618	3296	53.2
5	494	3296	62.0
6	412	3296	69.5
7	352	3296	75.8
8	308	3296	81.4

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT3400

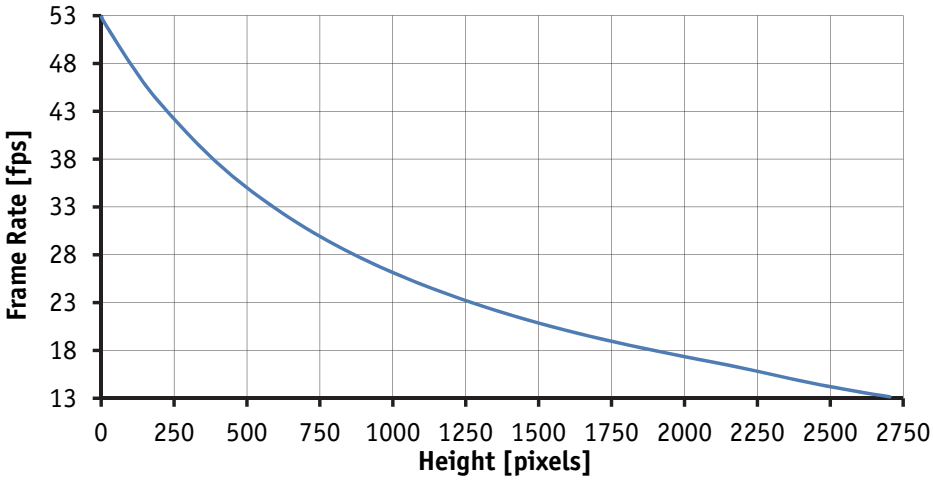


Figure 69: Frame rate vs. height for GT3400

Height	[1]Width	[2]RegionY	Frame rate
2704	3384	0	13.2
2600	3384	52	13.7
2400	3384	152	14.8
2200	3384	252	16.2
2000	3384	352	17.4
1800	3384	452	18.6
1600	3384	552	20.1
1400	3384	652	21.7
1200	3384	752	23.8
1000	3384	852	26.1
800	3384	952	29.1
600	3384	1052	32.8
400	3384	1152	37.5
200	3384	1252	43.9
100	3384	1302	48.0
50	3384	1327	50.4
20	3384	1342	51.8
10	3384	1347	52.3
5	3384	1350	52.6
2	3384	1351	52.8
1	3384	1352	52.8

[3]BinningY	Height	Width	Frame rate
2	1352	3384	25.1
3	900	3384	34.1
4	676	3384	41.4
5	540	3384	47.6
6	450	3384	52.8
7	386	3384	57.2
8	338	3384	61.0

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT4905

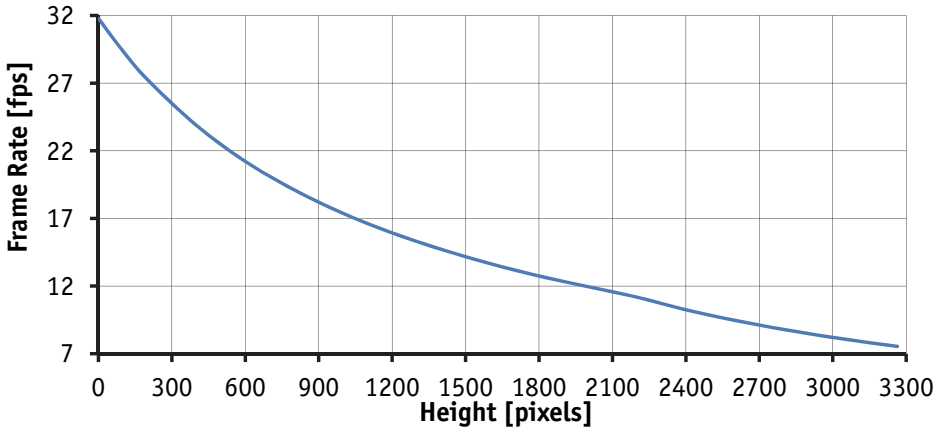


Figure 70: Frame rate vs. height for GT4905

Height	[1]Width	[2]RegionY	Frame rate
3264	4896	0	7.5
3200	4896	32	7.7
3000	4896	132	8.2
2800	4896	232	8.8
2600	4896	332	9.5
2400	4896	432	10.2
2200	4896	532	11.2
2000	4896	632	12.0
1800	4896	732	12.7
1600	4896	832	13.7
1400	4896	932	14.7
1200	4896	1032	15.9
1000	4896	1132	17.4
800	4896	1232	19.1
600	4896	1332	21.2
400	4896	1432	23.9
200	4896	1532	27.3
100	4896	1582	29.4
50	4896	1607	30.6
20	4896	1622	31.3
10	4896	1627	31.6
5	4896	1630	31.7
2	4896	1631	31.8
1	4896	1632	31.8

[3]BinningY	Height	Width	Frame rate
2	1632	4896	15.1
3	1088	4896	20.7
4	816	4896	25.1
5	652	4896	28.8
6	544	4896	31.8
7	466	4896	34.4
8	408	4896	36.6

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT4907

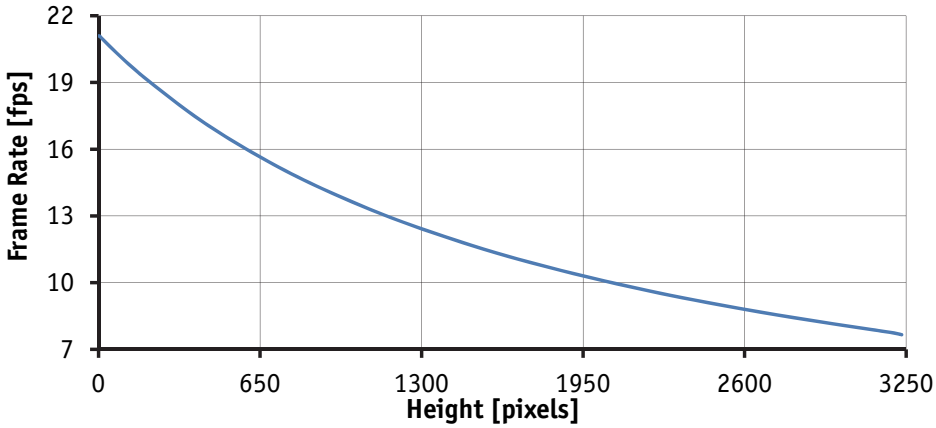


Figure 71: Frame rate vs. height for GT4907

Height	[1]Width	[2]RegionY	Frame rate
3232	4864	0	7.7
3200	4864	16	7.7
3000	4864	116	8.1
2800	4864	216	8.4
2600	4864	316	8.8
2400	4864	416	9.2
2200	4864	516	9.7
2000	4864	616	10.2
1800	4864	716	10.7
1600	4864	816	11.3
1400	4864	916	12.0
1200	4864	1016	12.8
1000	4864	1116	13.7
800	4864	1216	14.8
600	4864	1316	16.0
400	4864	1416	17.4
200	4864	1516	19.1
100	4864	1566	20.0
50	4864	1591	20.6
20	4864	1606	20.9
10	4864	1611	21.0
5	4864	1614	21.1
2	4864	1615	21.1
1	4864	1616	21.1

[3]BinningY	Height	Width	Frame rate
2	1616	4864	12.5
3	1076	4864	15.7
4	808	4864	17.9
5	646	4864	19.6
6	538	4864	21.0
7	460	4864	21.9
8	404	4864	22.7

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT6600

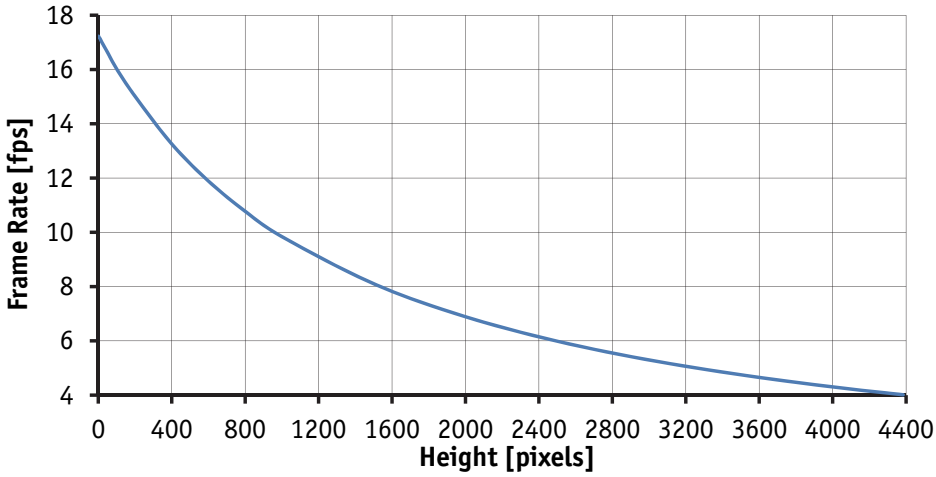


Figure 72: Frame rate vs. height for GT6600

Height	[1]Width	[2]RegionY	Frame rate
4384	6576	0	4.0
4000	6576	192	4.3
3500	6576	442	4.7
3000	6576	692	5.3
2500	6576	942	6.0
2000	6576	1192	6.9
1500	6576	1442	8.1
1000	6576	1692	9.8
800	6576	1792	10.8
600	6576	1892	11.9
400	6576	1992	13.3
200	6576	2092	15.0
100	6576	2142	16.0
50	6576	2167	16.6
20	6576	2182	17.0
10	6576	2187	17.1
5	6576	2190	17.2
2	6576	2191	17.2
1	6576	2192	17.2

[3]BinningY	Height	Width	Frame rate
2	2192	6576	7.5
3	1460	6576	10.4
4	1096	6576	13.0
5	876	6576	15.3
6	730	6576	17.3
7	626	6576	19.1
8	548	6576	20.7

[1]There is no frame rate increase with reduced width.

[2]For maximum speed advantage **ROIs are taken as center image**, where attribute **RegionY = (full sensor height – ROI height)/2**.

[3]**BinningY** is horizontal row summing on CCD before readout.

Prosilica GT model comparison

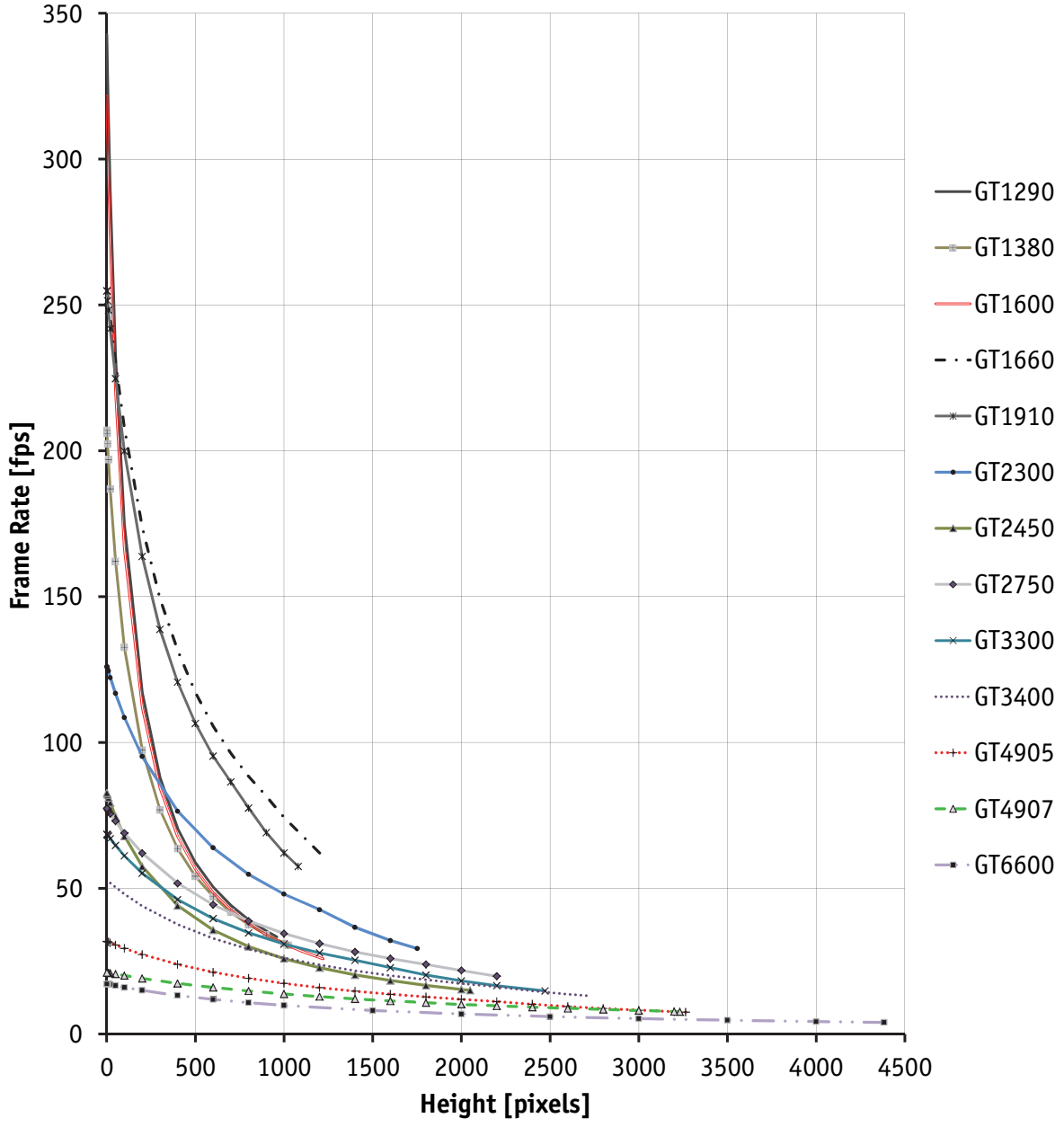


Figure 73: Frame rate vs. height model comparison. GT1930L, GT2000, and GT2050 are not included for scale reasons

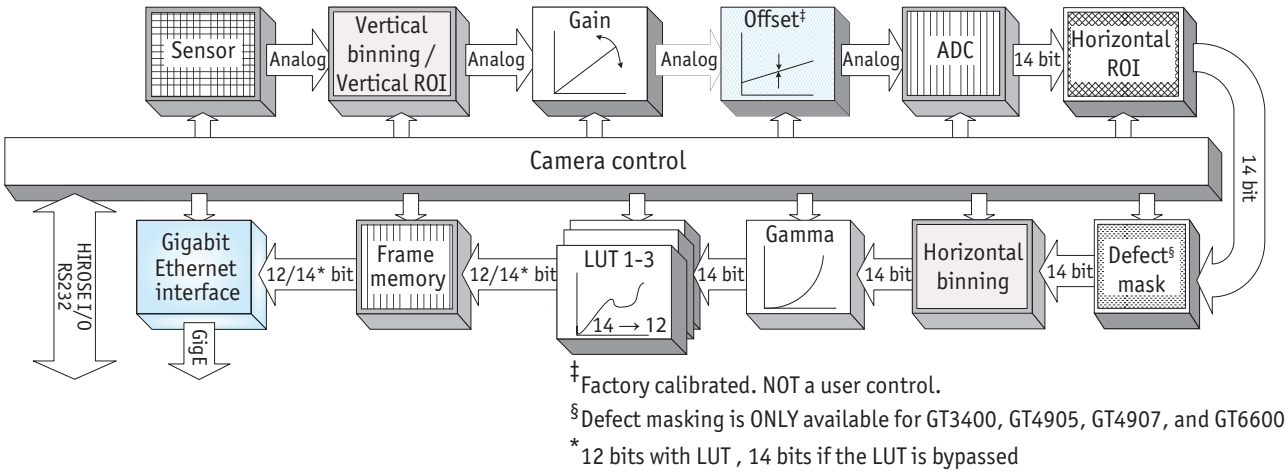
Camera data path

The following diagrams illustrate the data flow and the bit resolution of image data. The individual blocks are described in more detail in the **GigE Features Reference** document.

Prosilica GT monochrome cameras

Prosilica GT with CCD sensors

GT1290, GT1380, GT1600, GT1660, GT1910, GT1920, GT2300, GT2450, GT2750, GT3300, GT3400, GT4905, GT4907, GT6600



‡Factory calibrated. NOT a user control.

§Defect masking is ONLY available for GT3400, GT4905, GT4907, and GT6600

*12 bits with LUT , 14 bits if the LUT is bypassed

Figure 74: Block diagram of Prosilica GT monochrome cameras with CCD sensors

Prosilica GT with CMOS sensor

GT1930L

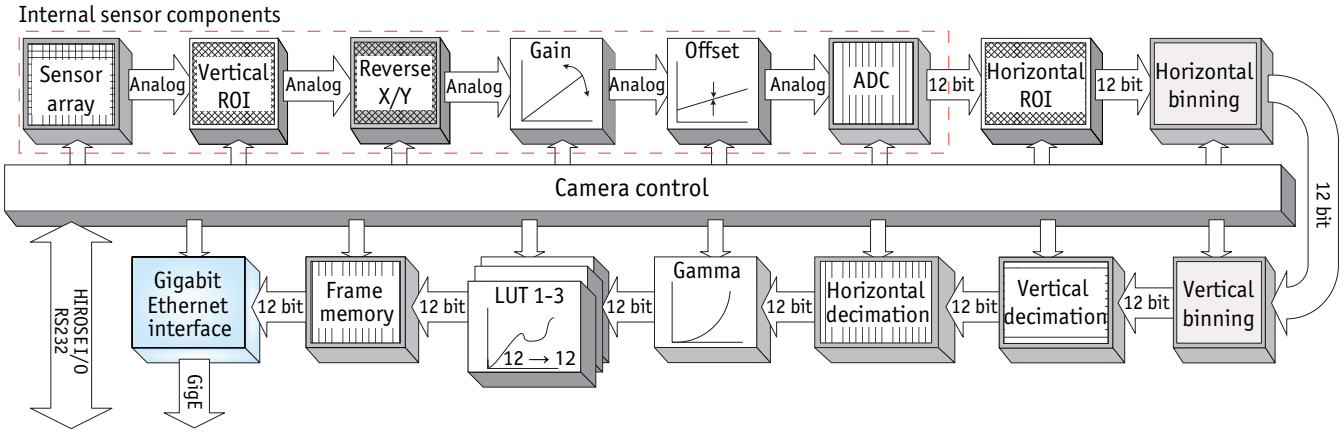


Figure 75: Block diagram of Prosilica GT1930L monochrome camera

GT2000, GT2000NIR, GT2050, GT2050NIR

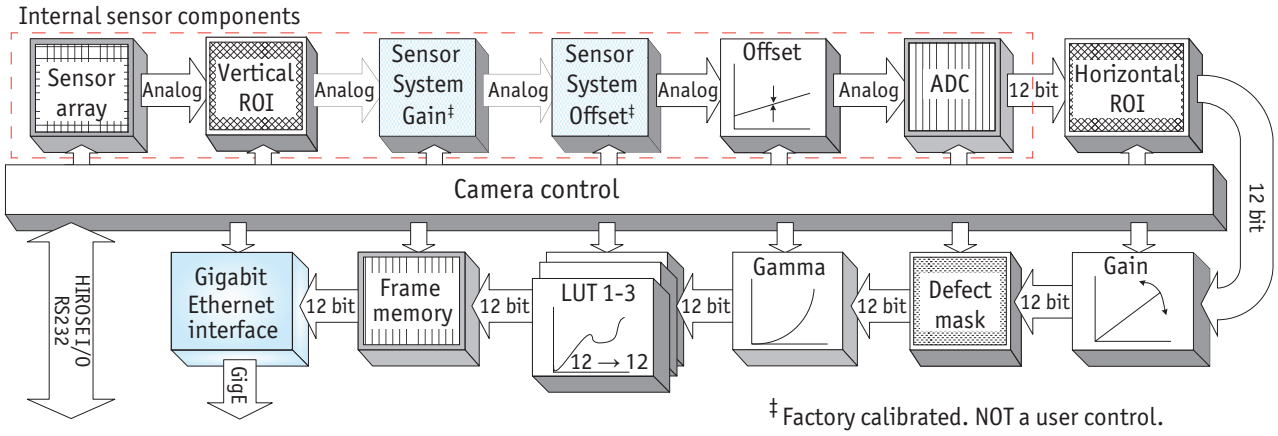


Figure 76: Block diagram of Prosilica GT2000, GT2000NIR, GT2050, and GT2050NIR monochrome cameras

Prosilica GT color cameras

Prosilica GT with CCD sensors

GT1290C, GT1380C, GT1600C, GT1660C, GT1910C, GT1920C, GT2300C, GT2450C, GT2750C, GT3300C, GT3400C, GT4905C, GT4907C, GT6600C

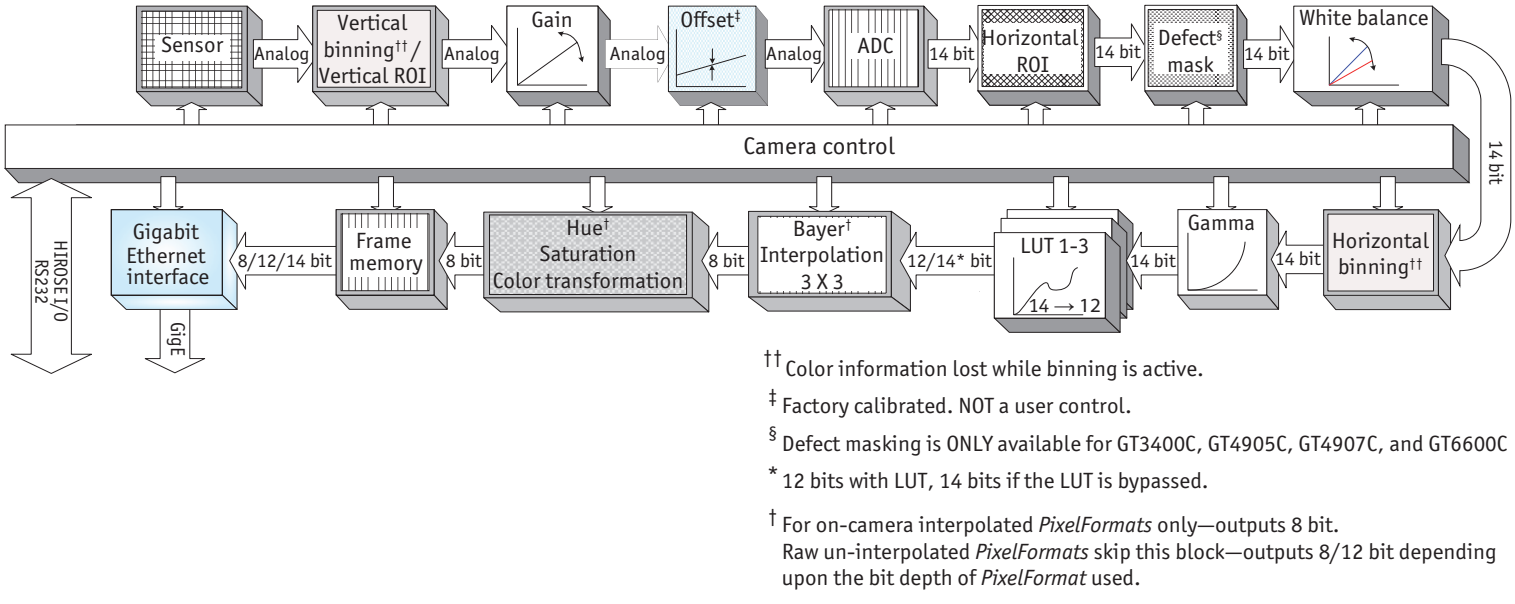
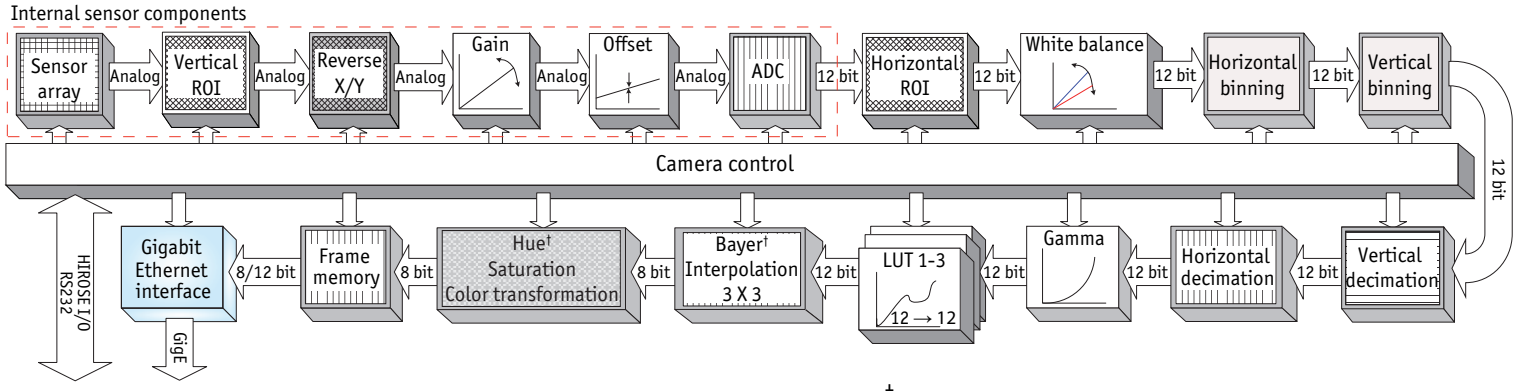


Figure 77: Block diagram of Prosilica GT color cameras with CCD sensors

Prosilica GT with CMOS sensors

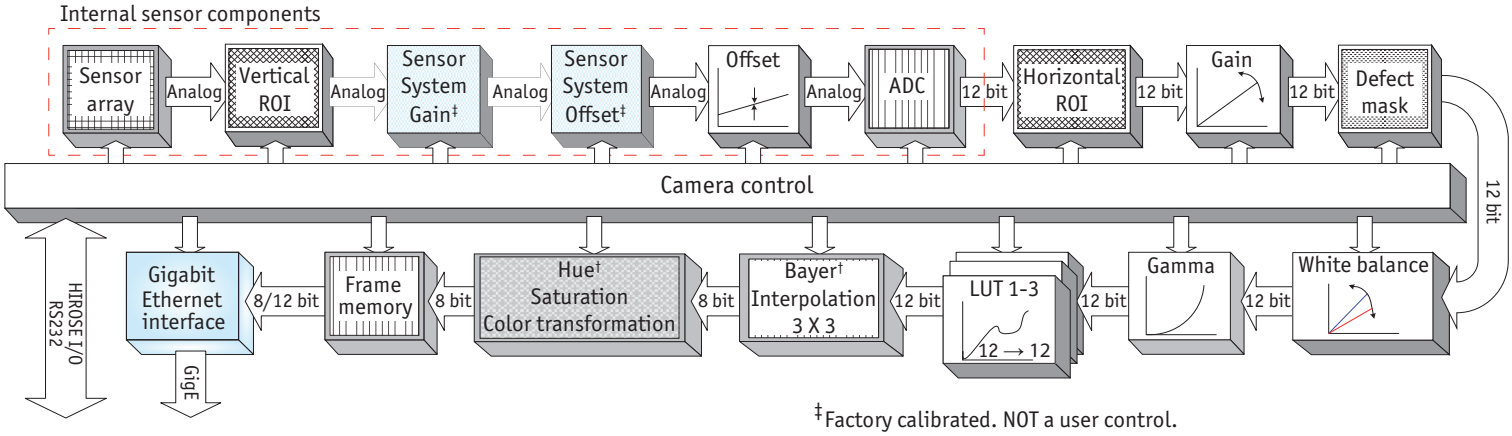
GT1930LC



†For on-camera interpolated *PixelFormats* only—outputs 8 bit.
Raw un-interpolated *PixelFormats* skip this block—outputs 8/12 bit, depending upon the bit depth of *PixelFormat* used.

Figure 78: Block diagram of Prosilica GT1930L color camera

GT2000C, GT2050C



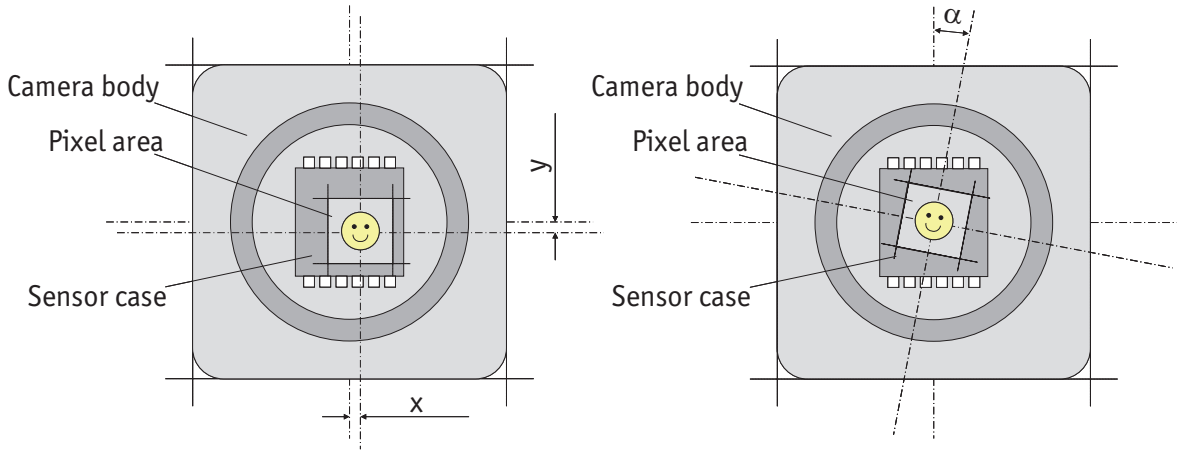
‡Factory calibrated. NOT a user control.

†For on-camera interpolated *PixelFormats* only—outputs 8 bit.
Raw un-interpolated *PixelFormats* skip this block—outputs 8/12 bit depending upon the bit depth of *PixelFormat* used.

Figure 79: Block diagram of Prosilica GT2000 and GT2050 color cameras

Appendix

Sensor position accuracy of Prosilica GT standard and extended cameras



Method of Positioning:	Optical alignment of photo sensitive sensor area into camera front module. (lens mount front flange)		
Reference points:	Sensor: Center of pixel area (photo sensitive cells) Camera: Center of camera front flange (outer case edges)		
Accuracy:	x/y:	±250 µm	(Sensor shift)
	α:	< 1°	(Sensor rotation)
	Z:	±10 µm	(Optical back focal length)

Additional references

Prosilica GT webpage

http://www.alliedvision.com/en/products/cameras

Prosilica GT Documentation

http://www.alliedvision.com/en/support/technical-documentation/prosilica-gt-documentation

VIMBA SDK

http://www.alliedvision.com/en/products/software

PvAPI SDK- (Under Legacy Software)

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

Knowledge base

http://www.alliedvision.com/en/support/technical-papers-knowledge-base

Case studies

http://www.alliedvision.com/en/applications

Firmware

http://www.alliedvision.com/en/support/firmware

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