AVT Prosilica GT

Technical Manual

AVT GigE Vision Cameras

V2.0.3
70-0070

21 June2012

Allied Vision Technologies Canada Inc.
101-3750 North Fraser Way
V5J 5E9, Burnaby, BC / Canada

ALLIED Vision Technologies

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 for any damages resulting from such improper use or sale.

Trademarks
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Warranty
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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Allied Vision Technologies Canada Inc. 12/2011

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Introduction

This **AVT 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 **AVT GigE Installation Manual**.

For detailed information on camera features and controls specific to the Prosilica GT, GX, GE, GT and GB refer to the **AVT Prosilica GigE Camera and Driver Attributes** document.

www

AVT Prosilica GT literature:

http://www.alliedvisiontec.com/us/support/downloads/product-literature/prosilica-GT.html

Info

Please read through this manual carefully.

Document history

Version	Date	Remarks
V2.0.0	12.12.11	New manual – Release Status
V2.0.1	08.03.12	-Spectral response curves. -GT1910, GT1920, GT2300, GT2750 frame rate charts.
V2.0.2	5.31.12	GT3300, GT1660 addition.
V2.0.3	6.21.12	DC Iris info added

Table 1: Document History

Symbols used in this manual

Note

This symbol highlights important information

Caution

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

www

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

Example:

http://www.alliedvisiontec.com

Warranty

Info

Allied Vision Technologies Canada provides a 2-year warranty which covers the replacement and repair of all AVT parts that are found to be defective in the normal use of this product. AVT will not warranty parts that have been damaged through the obvious misuse of this product.

Precautions

Caution

DO NOT OPEN THE CAMERA. WARRANTY IS VOID IF CAMERA IS OPENED.

This camera contains sensitive components which can be damaged if handled incorrectly.

Caution

KEEP SHIPPING MATERIAL.

Poor packaging of this product can 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 this 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 sensor cleaning in this document.

Caution

DO NOT EXCEED ENVIRONMENTAL SPECIFICATIONS.

See environmental specifications limits in the Specifications section of this document. Special care is required to maintain a reasonable operating temperature. If the camera is to be operated in a warm environment, it is suggested that the camera be mounted on a heat sink such as a metal bracket and that there is sufficient air flow.

Cleaning the sensor

Caution

DO NOT CONTACT CLEAN SENSOR UNLESS ABSOLUTELY NECESSARY

Identifying Debris

Debris on the image sensor or optical components will appear as a darkened area or smudge on the image that does not move as the camera is moved. Do not confuse this with a pixel defect which will appear as a distinct point.

Locating Debris

Before attempting to clean the image sensor, it is important to first determine that the problem is due to debris on the sensor window. To do this you, should be viewing a uniform image, such as a piece of paper, with the camera. Debris will appear as a dark spot or dark region that does not move as the camera is moved. To determine that the debris is not on the camera lens, rotate the lens independent of the camera. If the spot moves as the lens moves, then the object is on the lens not on the image sensor and therefore cleaning is not required. If the camera has an IR filter, then rotate the IR filter. If the object moves, then the particle is on the IR filter not the sensor. If this is the case, remove the IR filter carefully using a small flat head screw driver. Clean both sides of the IR filter using the same techniques as explained below for the sensor window.

Caution

DO NOT TOUCH ANY OPTICS WITH FINGERS. OIL FROM FINGERS CAN DAMAGE FRAGILE OPTICAL COATINGS.

Cleaning with Air

If it is determined that debris is on the sensor window, then remove the camera lens, and blow the sensor window directly with clean compressed air. If canned air is used, do not shake or tilt the can prior to blowing the sensor. View a live image with the camera after blowing. If the debris is still there, repeat this process. Repeat the process a number of times with increased intensity until it is determined that the particulate cannot be dislodged. If this is the case, then proceed to the contact cleaning technique.

Contact Cleaning

Only use this method as a last resort. Use 99% laboratory quality isopropyl alcohol and clean cotton swabs. Dampen the swab in the alcohol and gently wipe the sensor in a single stroke. Do not reuse the same swab. Do not wipe the sensor if the sensor and swab are both dry. You must wipe the sensor quickly after immersion in the alcohol, or glue from the swab will contaminate the sensor window. Repeat this process until the debris is gone. If this process fails to remove the debris, then contact AVT.

Conformity

Allied Vision Technologies declares under its sole responsibility that all standard cameras of the **AVT 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
- FCC Part 15 Class A
- RoHS (2002/95/EC)

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

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, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Specifications

Prosilica GT	1290/1290C
Resolution	1280 x 960
Sensor	Sony ICX445ALA, ICX445AQA for color
Type	CCD Progressive
Sensor size	Type 1/3
Cell size	3.75 µm
Lens mount	C/CS
Max frame rate at full resolution	33.3 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1290: Mono8, Mono12Packed, Mono16 GT1290C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	12 µs to 60 seconds; 1 µs increments
Gain control	0 to 33 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	2.9 W @ 12 VDC
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 ^{0}C ... +65 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	86x53.3x33 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 (2002/95/EC)

Table 2: Prosilica GT1290 camera specification

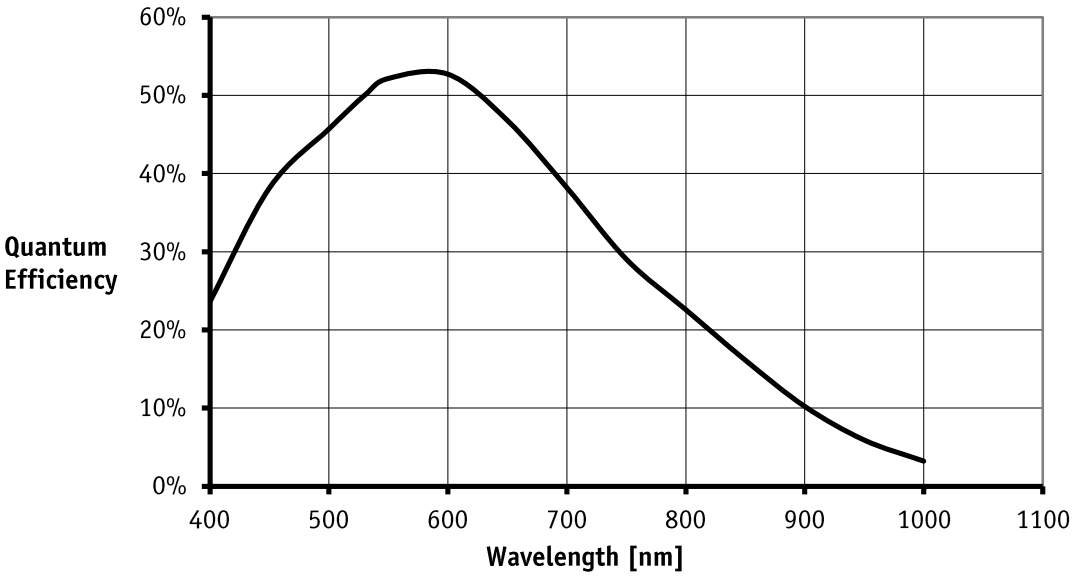


Figure 1 – Prosilica GT1290 monochrome spectral response

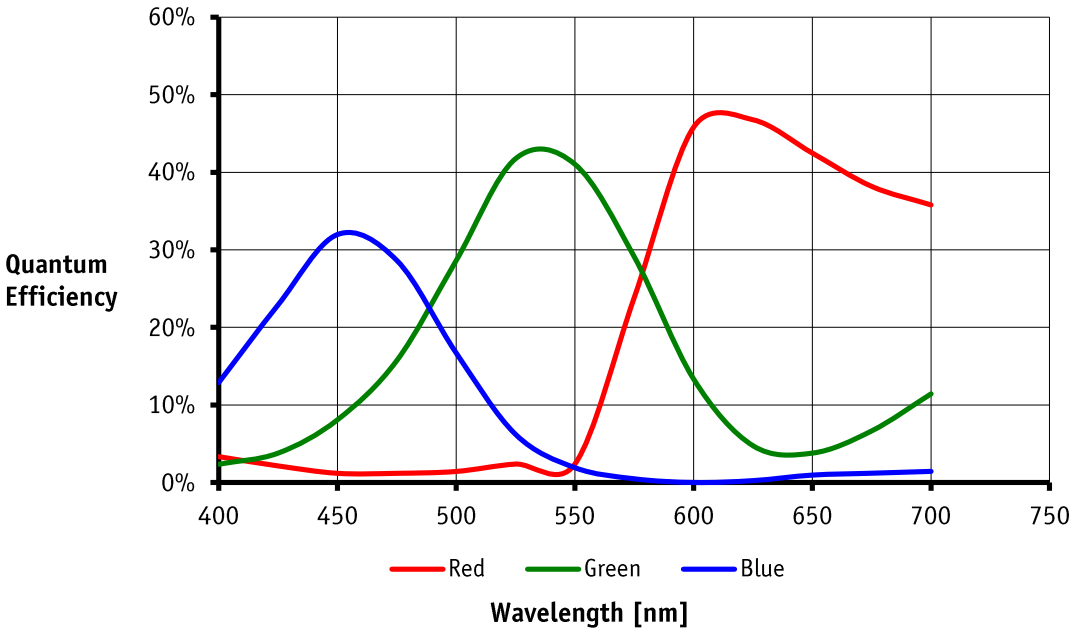


Figure 2 – Prosilica GT1290C color spectral response

Note

The design and specifications for the product described above may change without notice.

Specifications

Prosilica GT	1380/1380C
Resolution	1360 x 1024
Sensor	Sony ICX285AL, ICX285AQ for color
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	6.45µm
Lens mount	C
Max frame rate at full resolution	30.5 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1380: Mono8, Mono12Packed, Mono16 GT1380C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 34 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	3.4 W @ 12 VDC
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 ^{0}C ... +65 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	86x53.3x33 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 (2002/95/EC)

Table 3: Prosilica GT1380 camera specification

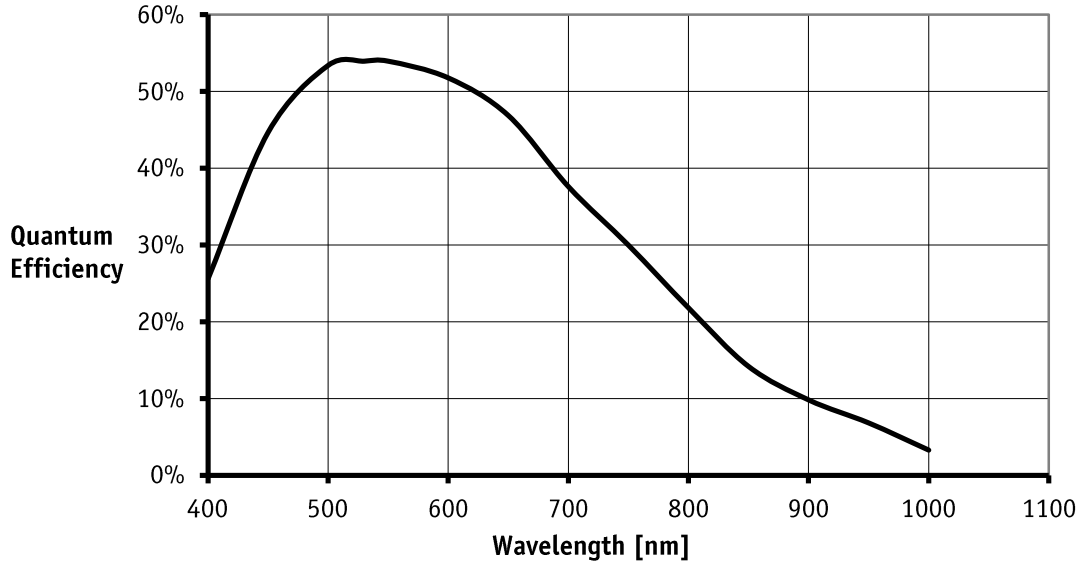


Figure 3 – Prosilica GT1380 monochrome spectral response

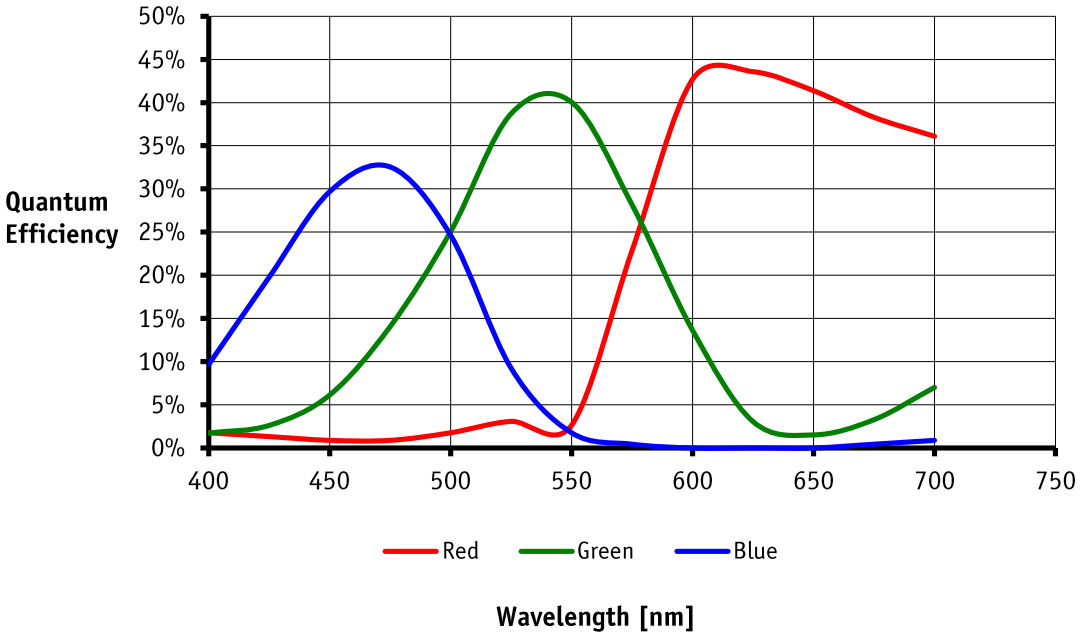


Figure 4 – Prosilica GT1380C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	1600/1600C
Resolution	1620 x 1220
Sensor	Sony ICX274AL, ICX274AQ for color
Type	CCD Progressive
Sensor size	Type 1/1.8
Cell size	4.4 µm
Lens mount	C
Lens mount	C/CS
Max frame rate at full resolution	25.8 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1600: Mono8, Mono12Packed, Mono16 GT1600C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 26 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	3.3 W @ 12 VDC
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 ^{0}C ... +65 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	86x53.3x33 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 (2002/95/EC)

Table 4: Prosilica GT1600 camera specification

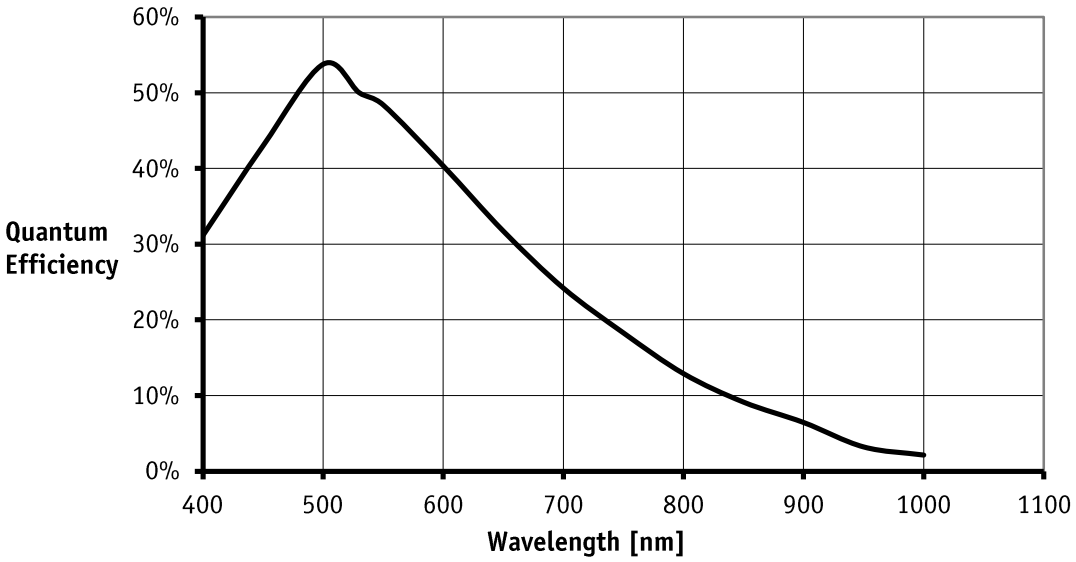


Figure 5 – Prosilica GT1600 monochrome spectral response

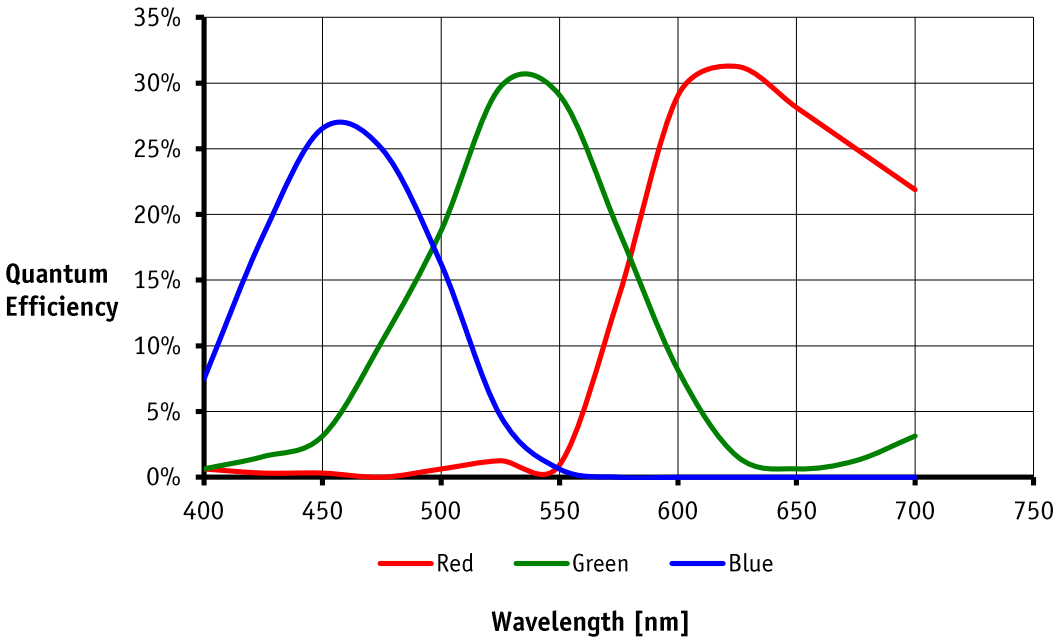


Figure 6 – Prosilica GT1600C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	1660/1660C
Resolution	1600x1200
Sensor	Kodak KAI-02050
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5µm
Lens mount	C
Max frame rate at full resolution	62 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1660: Mono8, Mono12Packed, Mono16 GT1660C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	5.1 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	92x53.3x33 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 (2002/95/EC)

Table 5: Prosilica GT1660 camera specification

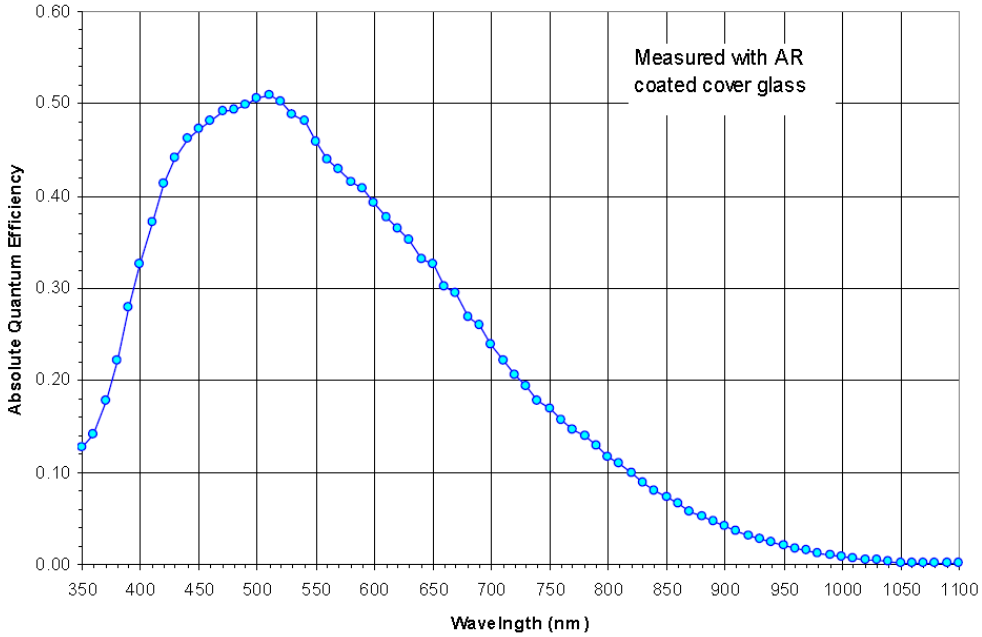


Figure 7 – Prosilica GT1660 monochrome spectral response

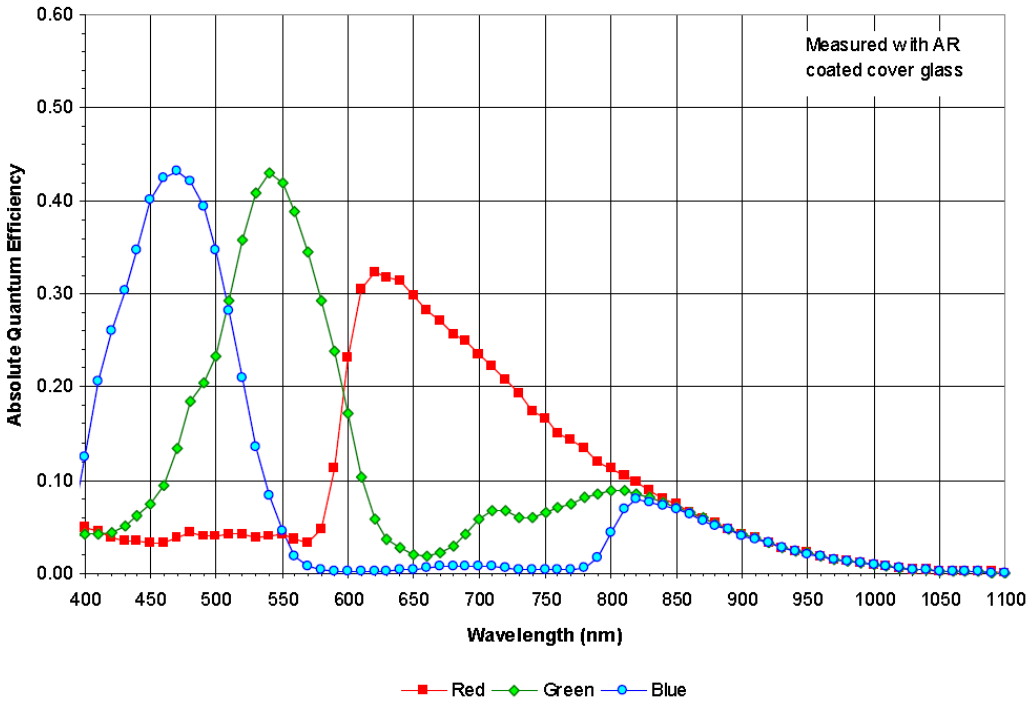


Figure 8 – Prosilica GT1660C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	1910/1910C
Resolution	1920 x 1080
Sensor	Kodak KAI-02150
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	5.5µm
Lens mount	C
Max frame rate at full resolution	57.5 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1910: Mono8, Mono12Packed, Mono16 GT1910C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	5.1 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	92x53.3x33 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 (2002/95/EC)

Table 6: Prosilica GT1910 camera specification

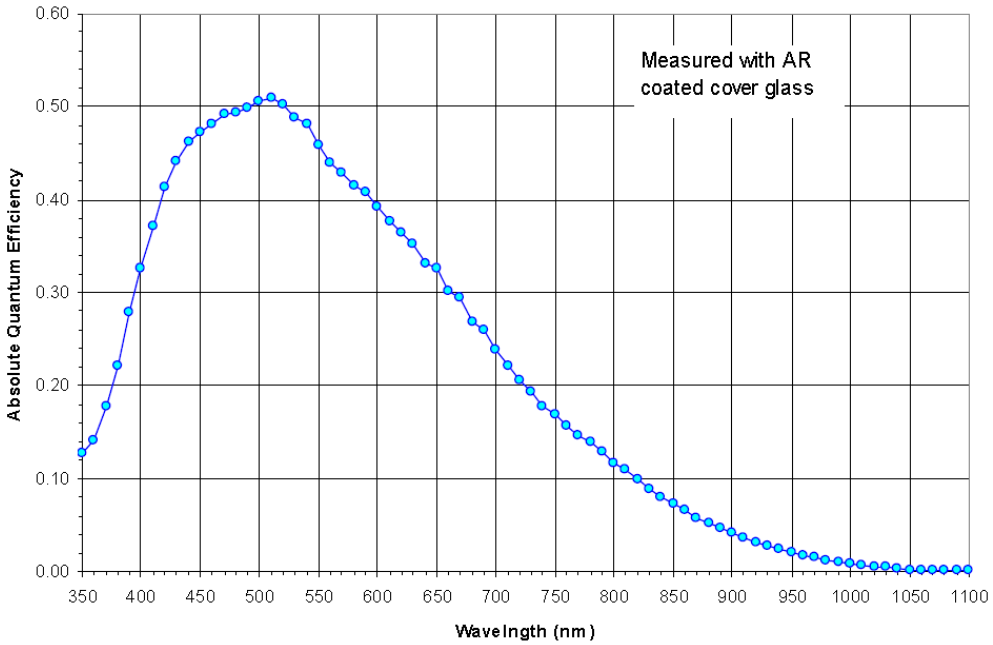


Figure 9 – Prosilica GT1910 monochrome spectral response

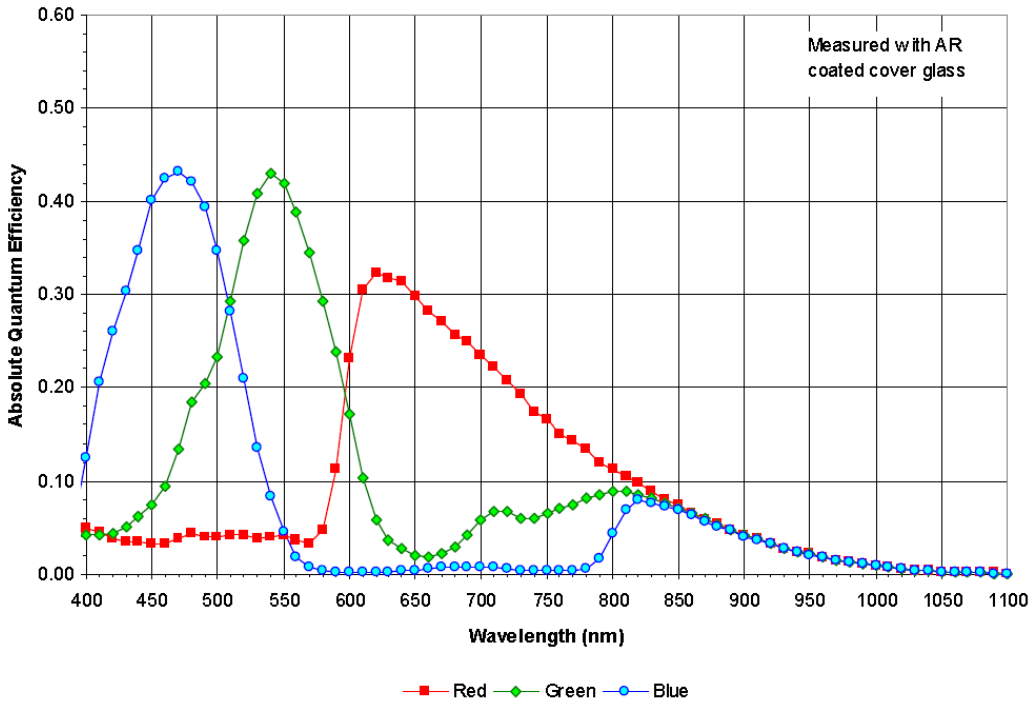


Figure 10 – Prosilica GT1910C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	1920/1920C
Resolution	1936 x 1456
Sensor	Sony ICX674
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	4.54 µm
Lens mount	C
Max frame rate at full resolution	40.7 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT1920: Mono8, Mono12Packed, Mono16 GT1920C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 33 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	4.9 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	92x53.3x33 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 (2002/95/EC)

Table 7: Prosilica GT1920 camera specification

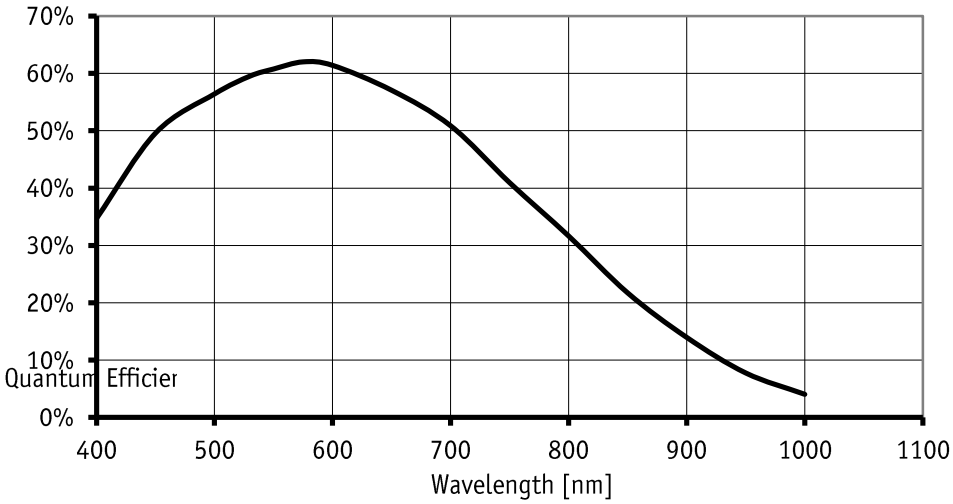


Figure 11 – Prosilica GT1920 monochrome spectral response

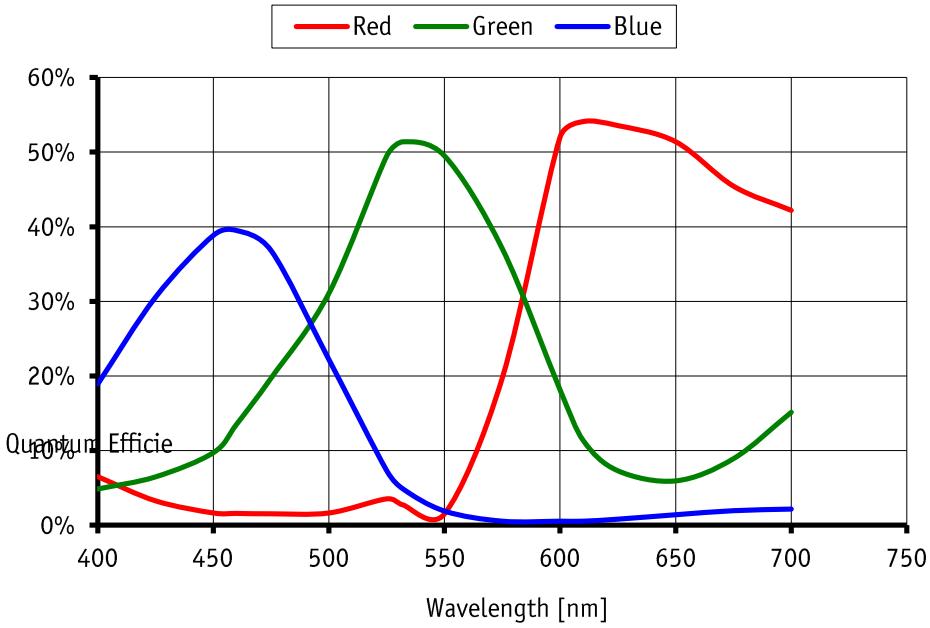


Figure 12 – Prosilica GT1920C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	2300/2300C
Resolution	2336 x 1752
Sensor	Kodak KAI-04050
Type	CCD Progressive
Sensor size	Type 1
Cell size	5.5µm
Lens mount	C
Max frame rate at full resolution	29.3 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT2300: Mono8, Mono12Packed, Mono16 GT2300C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	5.4 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	92x53.3x33 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 (2002/95/EC)

Table 8: Prosilica GT2300 camera specification

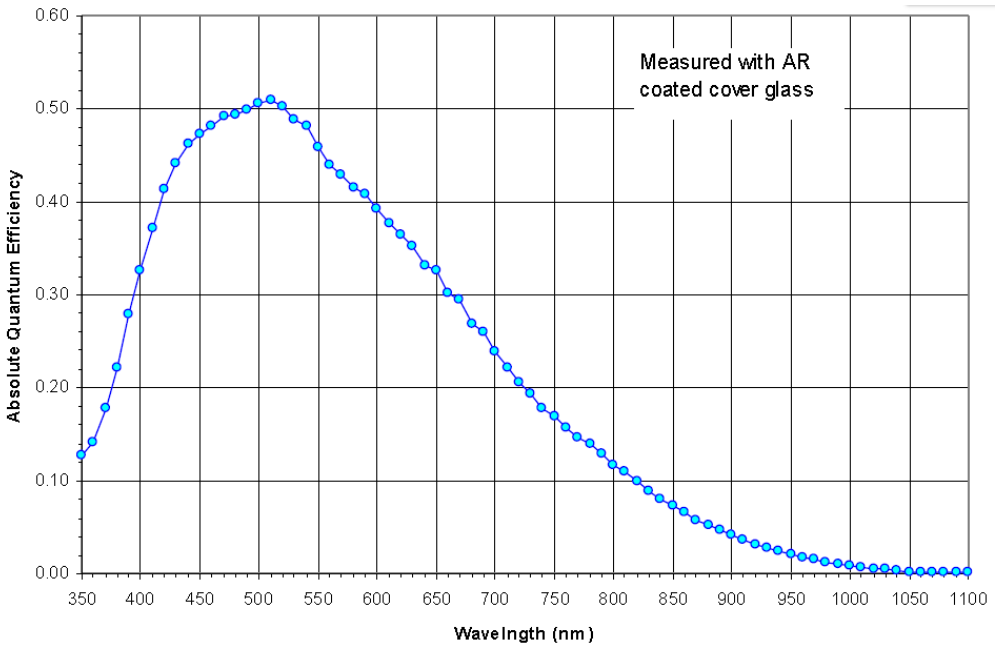


Figure 13 – Prosilica GT2300 monochrome spectral response

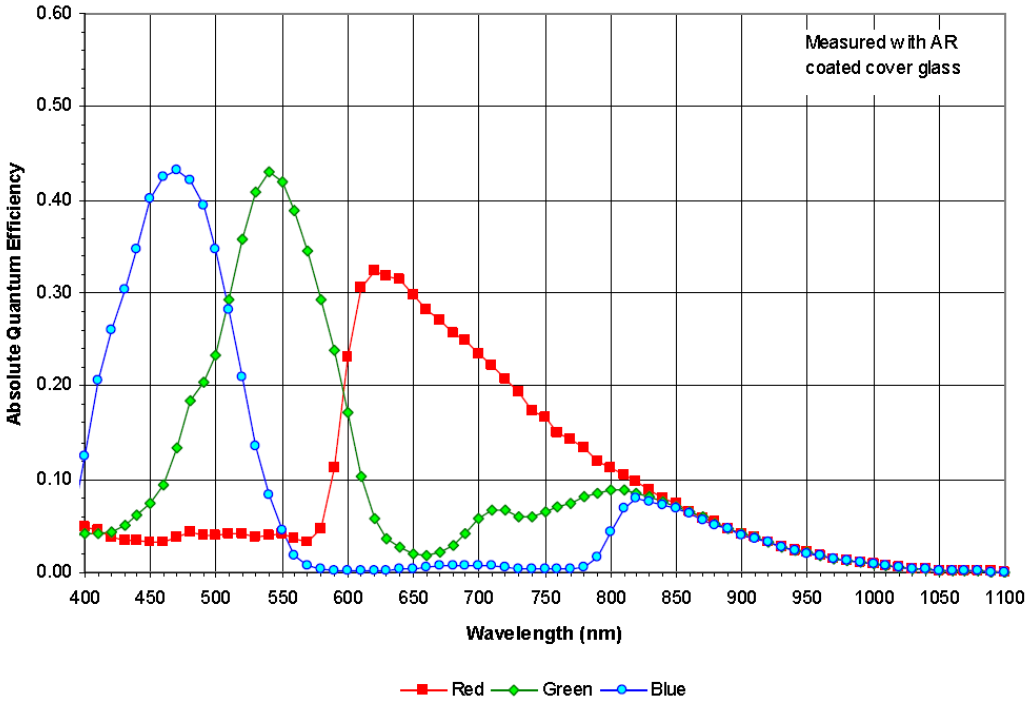


Figure 14 – Prosilica GT2300C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	2450/2450C
Resolution	2448 x 2050
Sensor	Sony ICX625ALA. Sony ICX625AQA for color
Type	CCD Progressive
Sensor size	Type 2/3
Cell size	3.45 µm
Lens mount	C
Max frame rate at full resolution	15 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT2450: Mono8, Mono12Packed, Mono16 GT2450C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	25 µs to 60 seconds; 1 µs increments
Gain control	0 to 30 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 14 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	3.8 W @ 12 VDC
Trigger latency	1.1µs
Trigger jitter	20 ns
Tpd	30 ns for non-isolated I/O, 70 ns for isolated I/O
Operating temperature	-20 ^{0}C ... +65 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	86 x 53.3 x 33 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 (2002/95/EC)

Table 9: Prosilica GT2450 camera specification

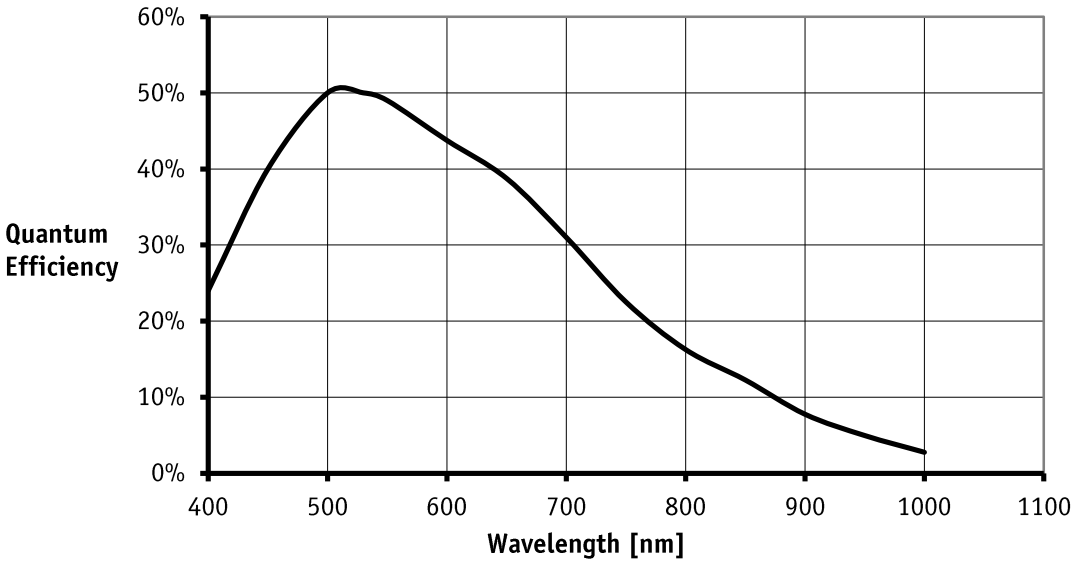


Figure 15 – Prosilica GT2450 monochrome spectral response

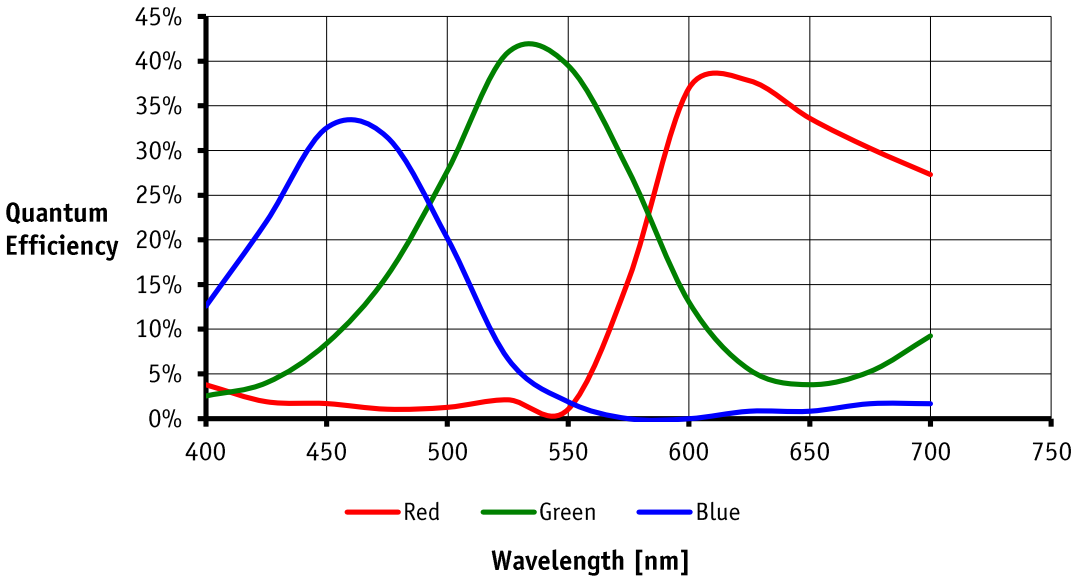


Figure 16 – Prosilica GT2450C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	2750/2750C
Resolution	2750 x 2200
Sensor	Sony ICX694 ALG. Sony ICX694 AQG for color
Type	CCD Progressive
Sensor size	Type 1
Cell size	4.54 µm
Lens mount	C
Max frame rate at full resolution	19.8 fps
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT2750: Mono8, Mono12Packed, Mono16 GT2750C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	5.4 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	92 x 53.3 x 33 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 (2002/95/EC)

Table 10: Prosilica GT2750 camera specification

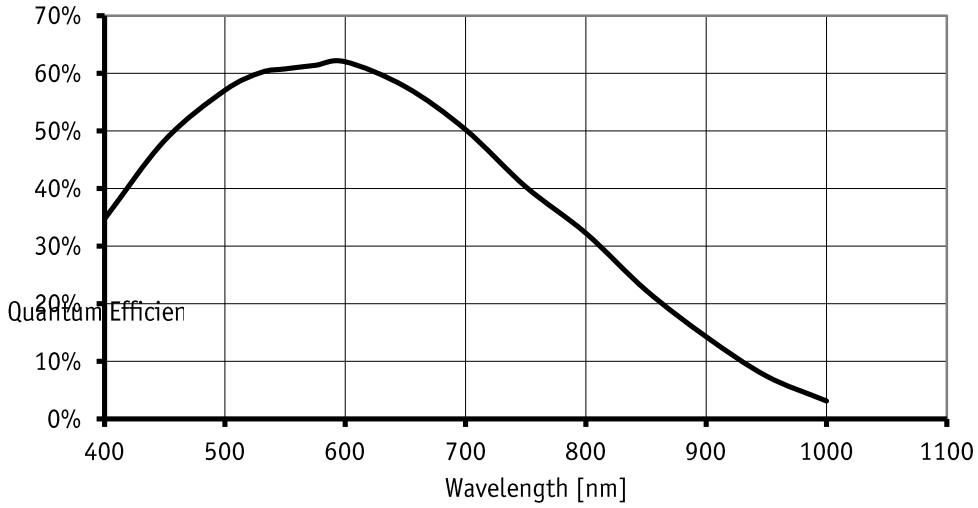


Figure 17 – Prosilica GT2750 monochrome spectral response

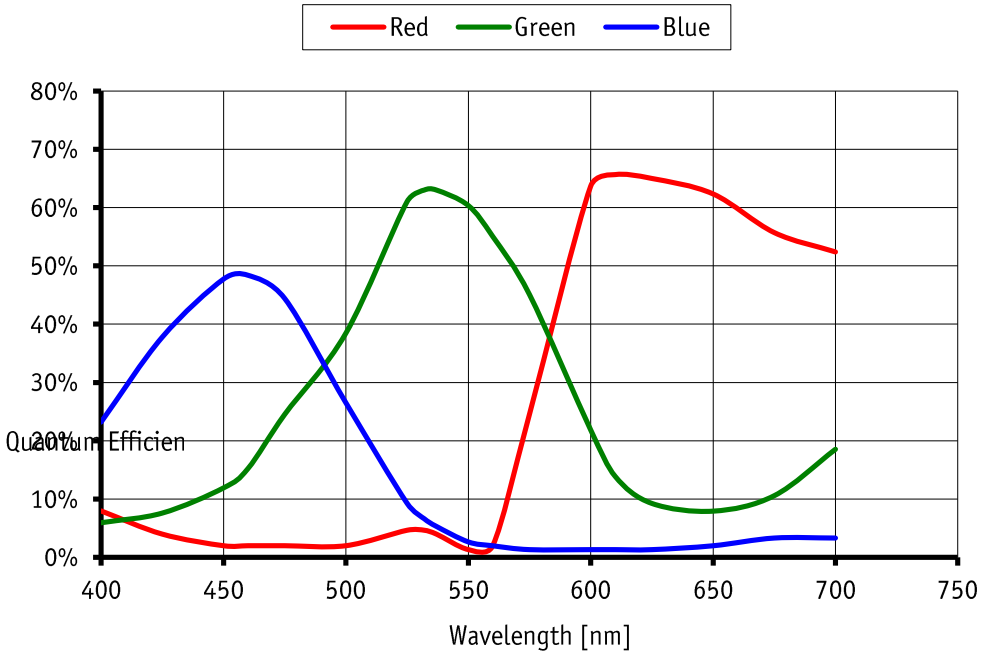


Figure 18 – Prosilica GT2750C color spectral response

Note

The design and specifications for the products described above may change without notice.

Specifications

Prosilica GT	3300/3300C
Resolution	3296 x 2472
Sensor	Kodak KAI-8050
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
A/D	14 bit
On-board FIFO	128 MB
Bit depth	8/14
Mono formats	GT3300: Mono8, Mono12Packed, Mono16 GT3300C: Mono8
Color formats	Bayer8, Bayer12Packed, Bayer16, YUV411, YUV422, YUV444, RGB24, BGR24, RGBA24, BGRA24
Exposure control	10 µs to 60 seconds; 1 µs increments
Gain control	0 to 32 dB
Horizontal binning	1 to 8 pixels
Vertical binning	1 to 8 rows
TTL I/Os	1 input, 2 outputs
Opto-coupled I/Os	1 input, 2 outputs
RS-232	1
Power requirements	POE, 7-25 VDC
Power consumption	5.6 W @ 12 VDC
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 ^{0}C ... +60 ^{0}C ambient temperature (without condensation)
Storage temperature	-20 ^{0}C ... +70 ^{0}C ambient temperature (without condensation)
Operating humidity	20 to 80% non-condensing
Body dimensions (L x W x H in mm)	121 x 59.7 x 59.7 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 (2002/95/EC)

Table 11: Prosilica GT3300 camera specification

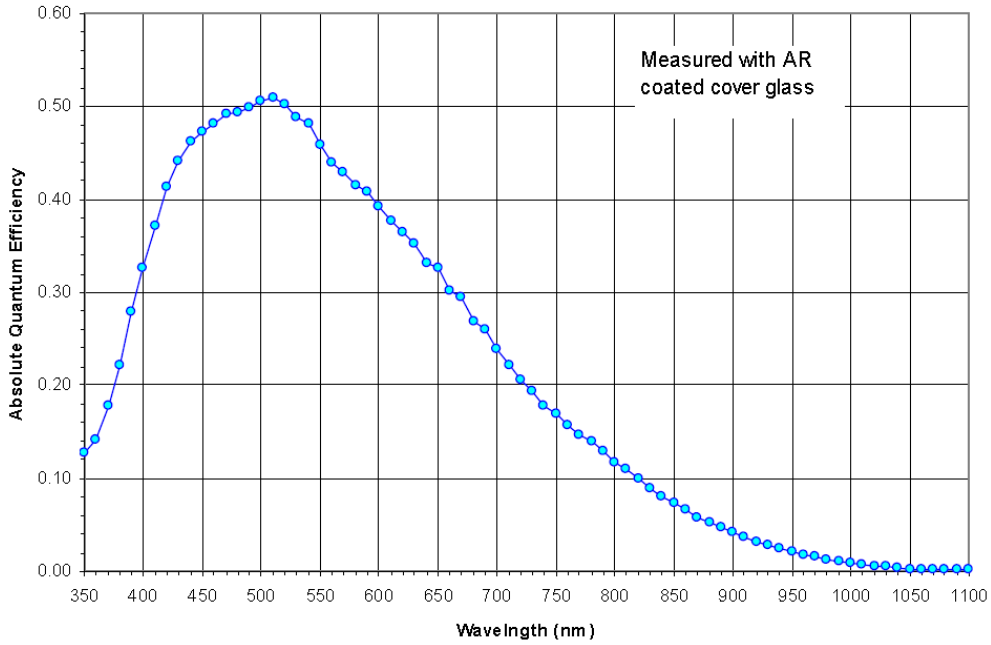


Figure 19 – Prosilica GT3300 monochrome spectral response

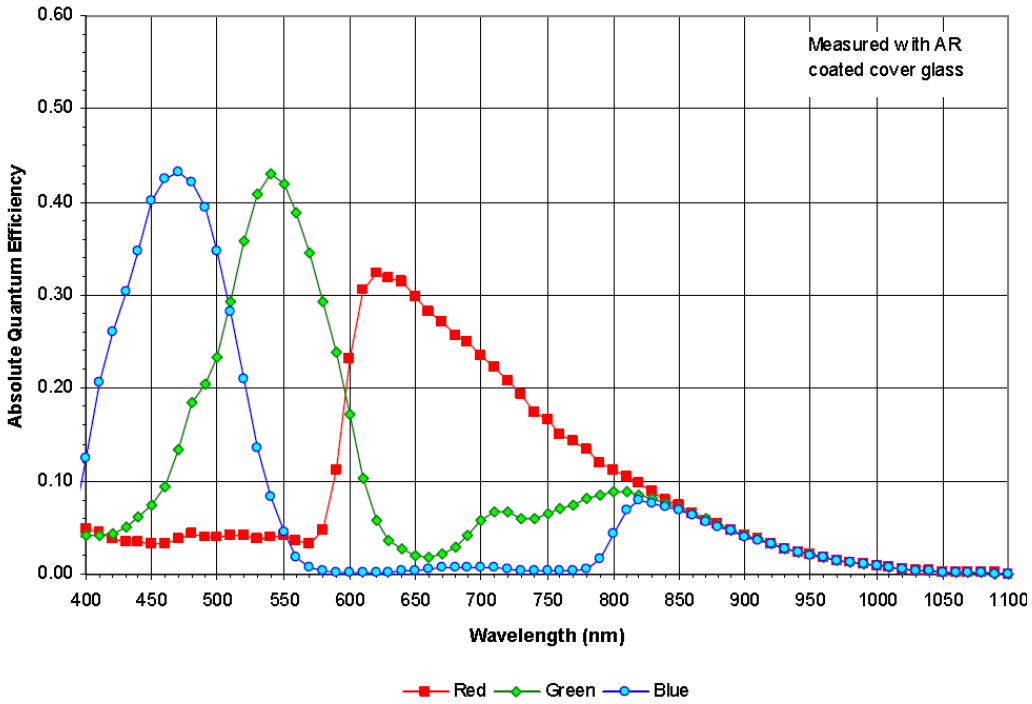


Figure 20 – Prosilica GT3300C color spectral response

Note

The design and specifications for the products described above may change without notice.

Camera controls

AVT cameras support a number of standard and extended features. The table below identifies the most interesting capabilities of this camera family. A complete listing of camera controls, including control definitions can be found in the **AVT Prosilica GigE Camera and Driver Attributes** document.

AVT Prosilica GigE Camera and Driver Attributes document online:

http://www.alliedvisiontec.com/fileadmin/content/PDF/Software/Prosilica_software/Prosilica_firmware/AVT_Camera_and_Driver_Attributes.pdf

Control	Description
Gain control	Manual and auto
Exposure control	Manual and auto
Whitebalance	Red and blue channel; manual and auto control
External trigger event	Rising edge, falling edge, any edge, level high, level low
External trigger delay	0 to 60 seconds; 1 us increments
Fixed rate control	0.001 fps to maximum frame rate
Imaging modes	Free-running, external trigger, fixed rate, software trigger
Sync out modes	Trigger ready, trigger input, exposing, readout, imaging, strobe, GPO
Region of interest (ROI)	Independent x and y control with 1 pixel resolution
Multicast	Streaming to multiple PC
Event channel	In-camera events including exposure start and trigger are asynchronously broadcasted to the host PC
Chunk data	Captured images are bundled with attribute information such as exposure and gain value
Color 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 lenses

Table 12: Prosilica GT camera and driver attribute highlights

IR cut filter: spectral transmission

Note

All Prosilica GT color models are equipped with an infrared block filter (IR filter). This filter is employed to stop infrared wavelength photons from passing to the imaging device. If the filter is removed, images will be dominated by red and cannot be properly color balanced.

Monochrome cameras do not employ an IR filter.

The figure below shows the filter transmission response for the IRC filter family from Sunex. Prosilica GT cameras utilize the IRC30 filter.

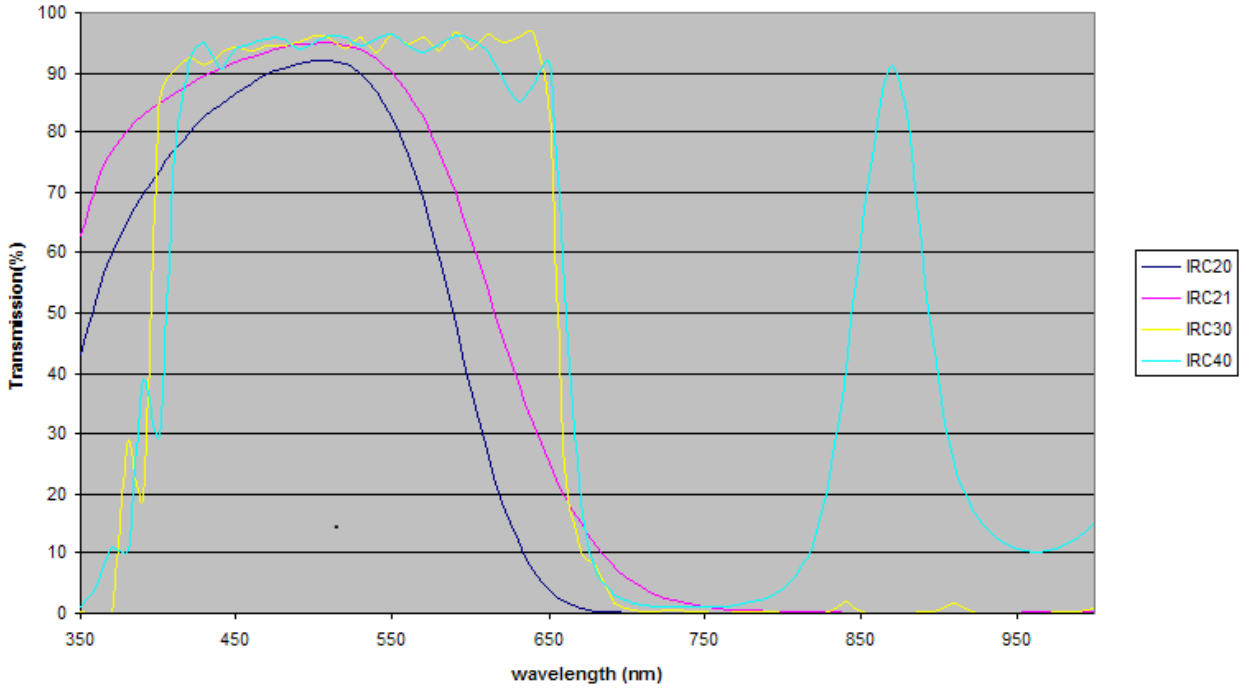


Figure 21: Sunex IRC filter transmission values

Camera dimensions

The Prosilica GT family supports a range of sensor configurations. To support this variety while maintaining the smallest package whenever possible, a slightly longer housing is used for quad tap sensor models.

Prosilica GT660, GT1290, GT1380, GT1600, GT2450

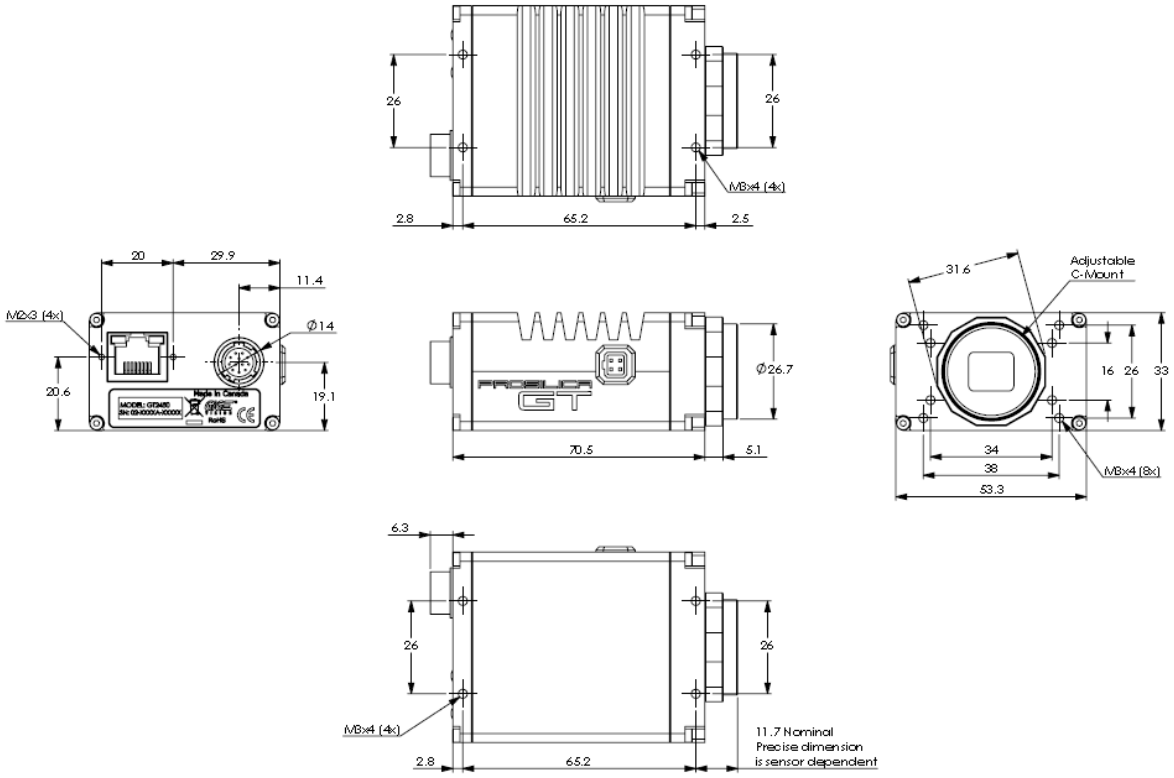


Figure 22: Prosilica GT mechanical dimensions for GT660, GT1290, GT1380, GT1600 and GT2450

Prosilica GT1660, GT1910, GT1920, GT2300, GT2750

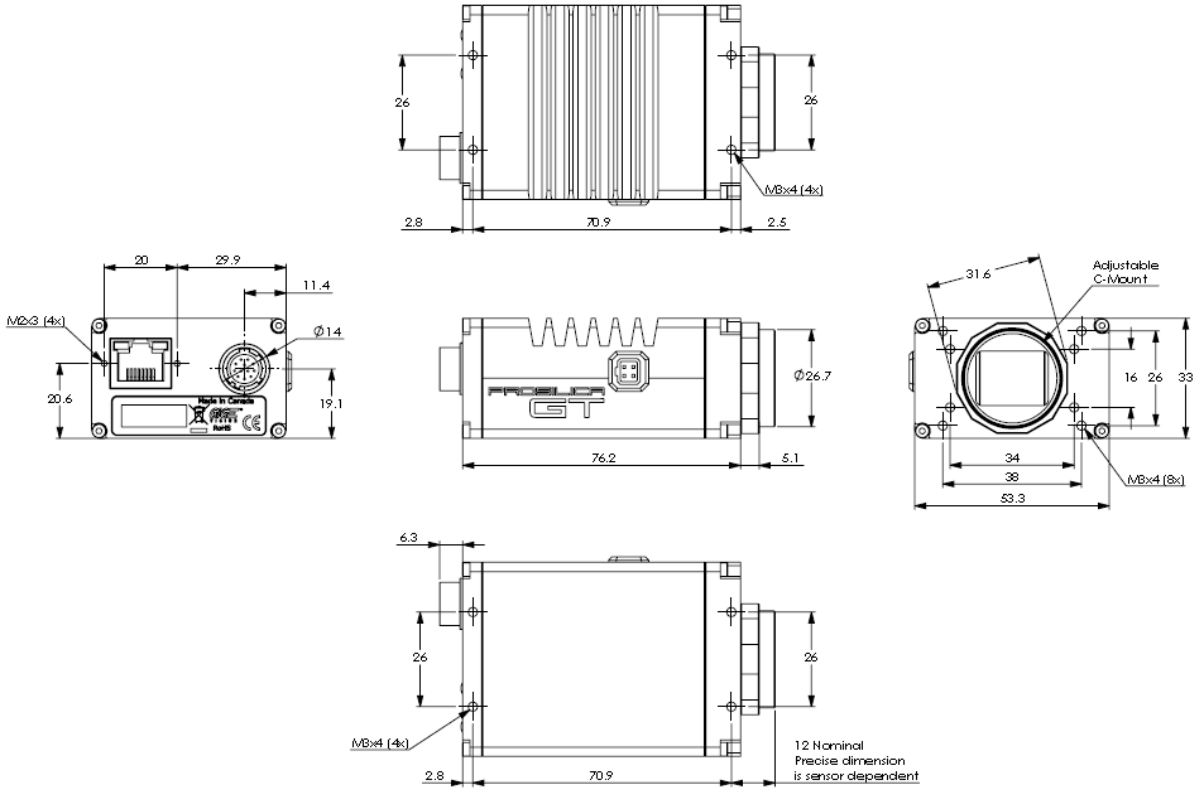


Figure 23: Prosilica GT mechanical dimensions for GT1660, GT1910, GT1920, GT2300 and GT2750.

Prosilica GT3300

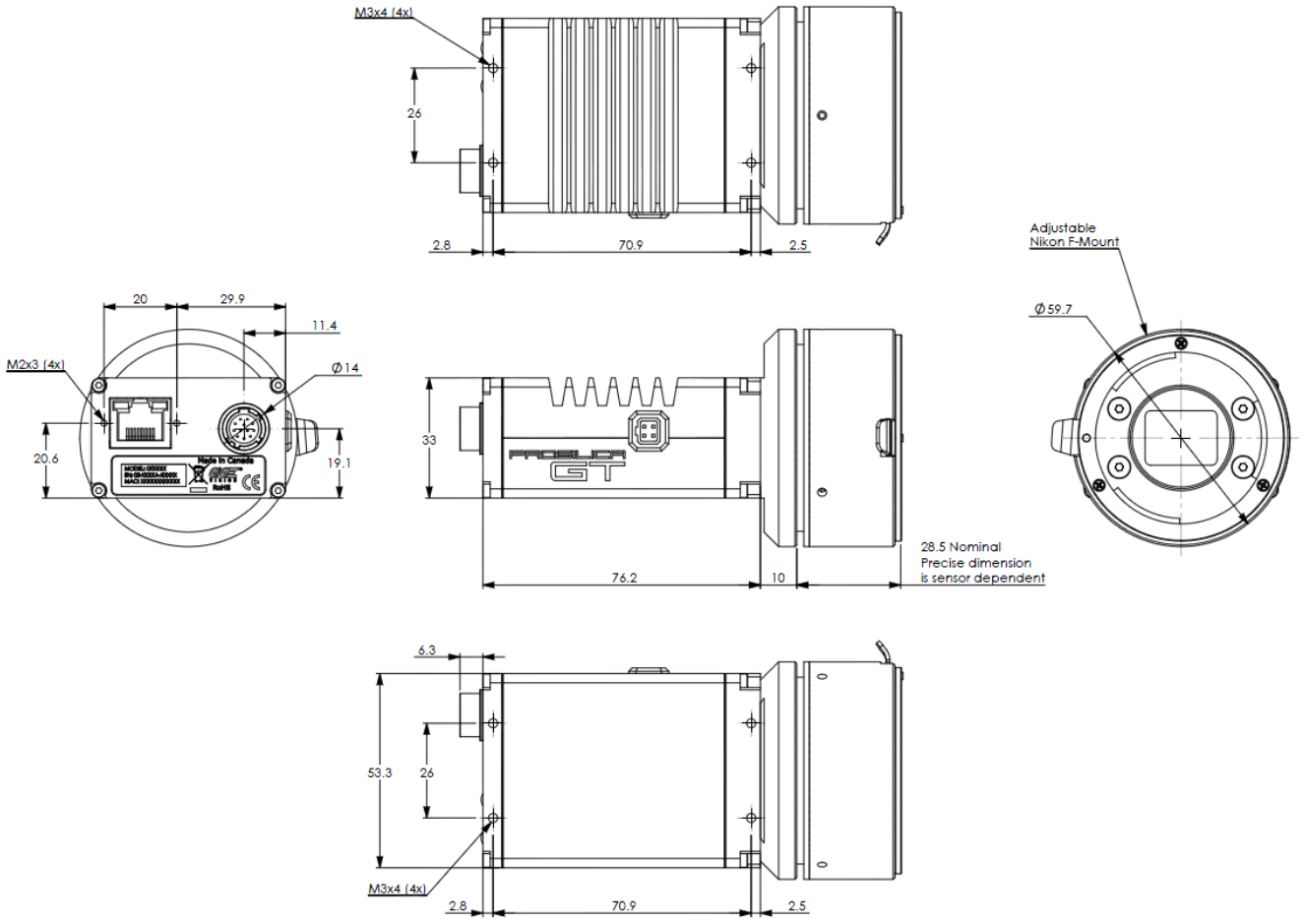


Figure 24: Prosilica GT3300 mechanical dimensions.

Tripod adapter

A **Prosilica GT** camera can be mounted on a camera tripod by using this mounting plate. The same mounting plate can be used for all models within the GT camera family.

Note

The Prosilica GT tripod mount can be provided by AVT.
AVT P/N: 02-5036A

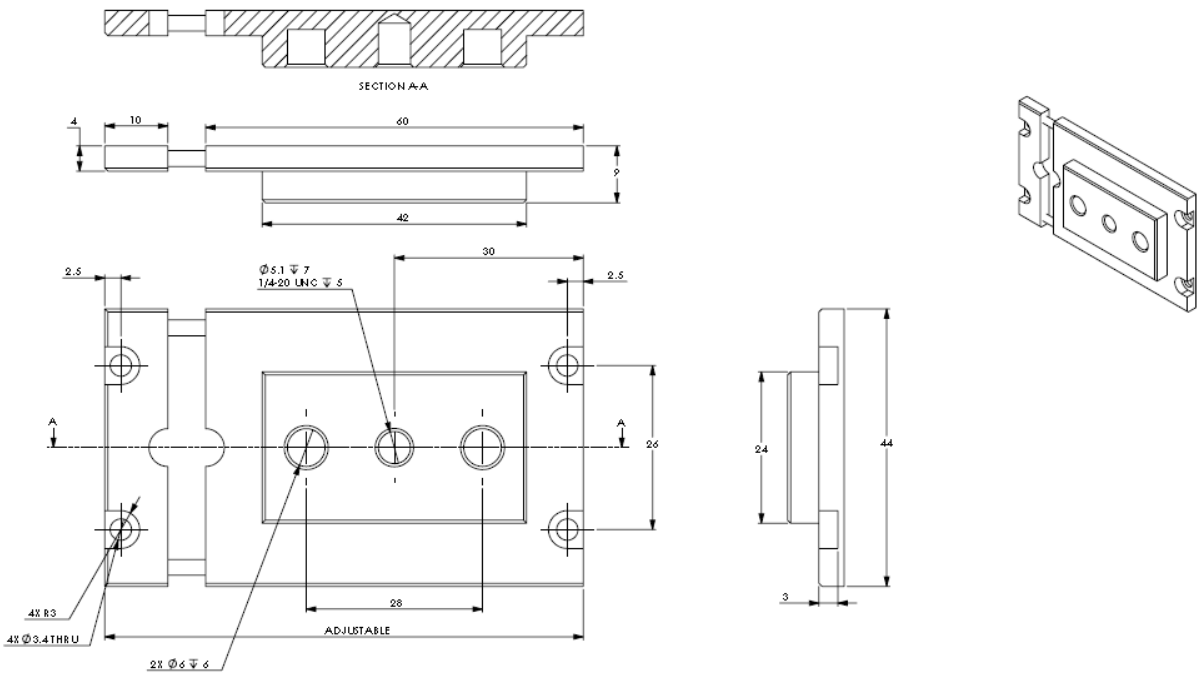


Figure 25: Prosilica GT tripod mount mechanical drawing

Adjustment of C-mount

Caution

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

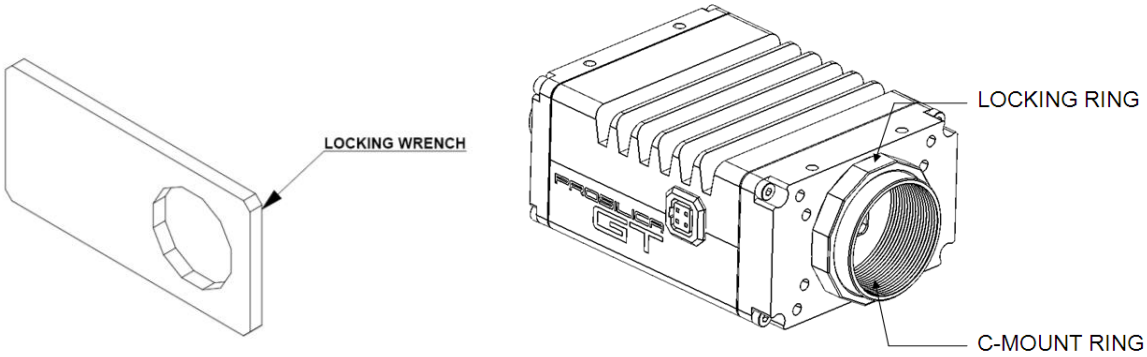


Figure 26: Prosilica GT camera and locking wrench

Loosen Locking Ring

Use an adjustable wrench to loosen 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 can be provided by AVT.
AVT P/N: 02-5003A

Prosilica GT cameras are shipped with C-mount. The camera can also be built with a CS-mount on request.

Image to Infinity

Use a C-mount compatible lens that allows an infinity focus. Set the lens to infinity and image a distant object. The distance required will depend on the lens used but typically, 10 to 15 meters 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 locking ring. Recheck focus.

Camera interfaces

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

www

For accessories like cables see:
http://www.alliedvisiontec.com/emea/products/accessories/gige-accessories.html

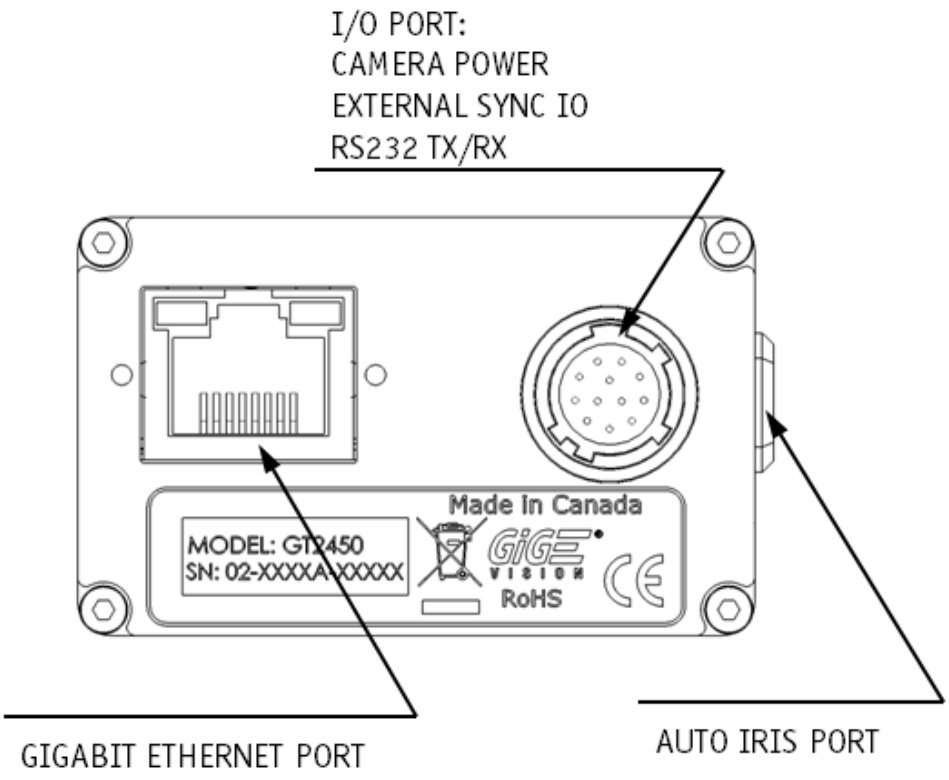
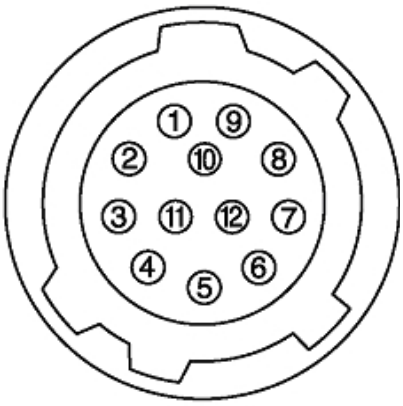


Figure 27: Prosilica GT connection diagram

Camera I/O connector pin assignment



Pin	Signal	Direction	Level	Description
1	External GND	---	GND for RS232 and ext. power	External Ground for RS232 and external power
2	External Power	---	+7...+25 V DC	Power Supply
3	Camera Out 4	Out	Open emitter max. 20mA	Camera Output 4 opto-isolated (GPOut4)
4	Camera In 1	In	LVTTL max. 3.3 V	Camera Input 1 non-isolated (GPIn1)
5	Camera Out 3	Out	Open emitter max. 20mA	Camera Output 3 opto-isolated (GPOut3)
6	Camera Out 1	Out	3.3V LVTTL max. 50µA	Camera Output 1 non-isolated (GPOut1)
7	Camera In GND	In	Common GND for inputs	Camera Common Input Ground (In GND)
8	RxD RS232	In	RS232	Terminal Receive Data
9	TxD RS232	Out	RS232	Terminal Transmit Data
10	Camera Isolated Out Power	In	Common VCC for outputs +5...+24 V DC	Power input for opto-isolated outputs (Out VCC)
11	Camera In 2	In	U_{in}(high) = 5 V...24 V U_{in}(low) = 0 V...0.8 V	Camera Input 2 opto-isolated (GPIn2)
12	Camera Out 2	Out	3.3V LVTTL max. 50µA	Camera Output 2 non=isolated (GPOut2)

Table 13: Prosilica GT I/O connector definition

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

This cable side Hirose connector can be purchased from AVT.
AVT P/N: K7600040 or 02-7002A

I/O definition

External power

The Prosilica GT can be powered through the Hirose I/O port, or through the Gigabit Ethernet port if using a power over Ethernet (POE) supported network card, switch, or injector.

The Hirose I/O external power port supports a wide input power voltage range. The camera will not power in reverse polarity. Exceeding the voltage range specified below will damage the camera.

Caution

7V - 25V. 12V Nominal.

Note

A 12V power adaptor with Hirose connector can be ordered from AVT:

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

Camera ground

This connection (In GND) provides the user ground reference and return path for the GPIn and GPOut signals. This connection is necessary if any of the isolated GPIn signals are to be used. It is also recommended that this ground connection be physically close to the used GPIn signals to prevent parasitic coupling. For example, a good cable design would connect the required signal on one conductor of a twisted pair and the isolated ground on the second conductor of the same twisted pair.

RxD RS-232 and TxD RS-232

These signals are RS-232 compatible. These signals allow communication from the host system via the Ethernet port to a peripheral device connected to the camera. These signals are not optically isolated and reference power ground. If these signals are used in the system, care must be taken to prevent ground loop problems.

Camera Isolated Out Power

This connection (Out VCC) provides the power supply for the isolated GPOut signals. The voltage requirement is from 5V to 24V DC. The current requirement for this supply is a function of the optical isolator collector current and the number of sync outs used in the

system. To prevent parasitic coupling this connection should be physically close to the used GPIn and GPOut signals and In GND.

Input triggers

Input signals 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 this signal. The camera can also be programmed to capture an image at some programmable delay time after the trigger event.

Camera In 1 – Not isolated

This signal is not electrically isolated and can be used when environmental noise is not a problem and when faster trigger response is required. The required signal is **low voltage TTL 3.3 V.** Signal common (Camera In GND) is used to complete the trigger circuit.

Caution

DO NOT EXCEED 5.1V ON SIGNAL INPUTS UNLESS OTHERWISE INDICATED

See Chapter **Camera trigger** on page 51 for detailed wiring circuit.

Camera In 2 - Isolated

This signal is optically isolated and should be used in noisy environments to prevent false trigger events. It requires the signal common (Camera In GND). Compared to the non- isolated trigger this input has a longer propagation time. It can be driven from **5V to 24V** with a **minimum current source of 5mA**.

Output triggers

These signals only function as outputs. They can be configured to active high or active low via software. The output signal can be assigned to a variety of internal camera signals via software as well. The internal camera signals are shown below.

Exposing	Corresponds to when camera is integrating light.
Trigger Ready	Indicates when the camera will 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.

Camera Out 1 and 2 – Non Isolated

This signal is not electrically isolated and can be used when environmental noise is not a problem and when faster trigger response is required. The output signal is a **low voltage TTL, maximum 3.3 V. Not suitable for driving loads in excess of 50µA.**

Camera Out 3 and 4 – Opto-Isolated

These signals are optically isolated and require the user to provide a high voltage level (Out VCC) and signal common (In GND). Out VCC can be from **5V to 24V**. ICC is a function of Out VCC and load resistor R. An example of the functional circuit is indicated in the following diagram.

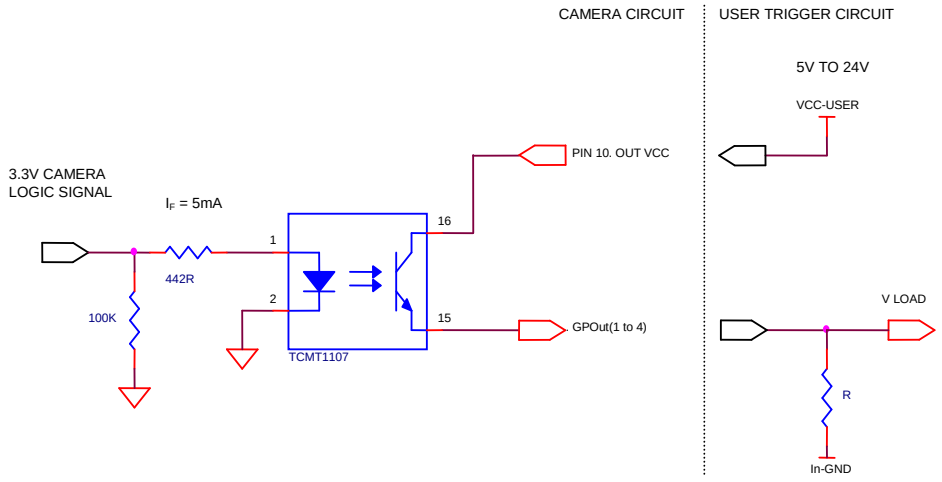


Figure 28: Prosilica GT output trigger circuit

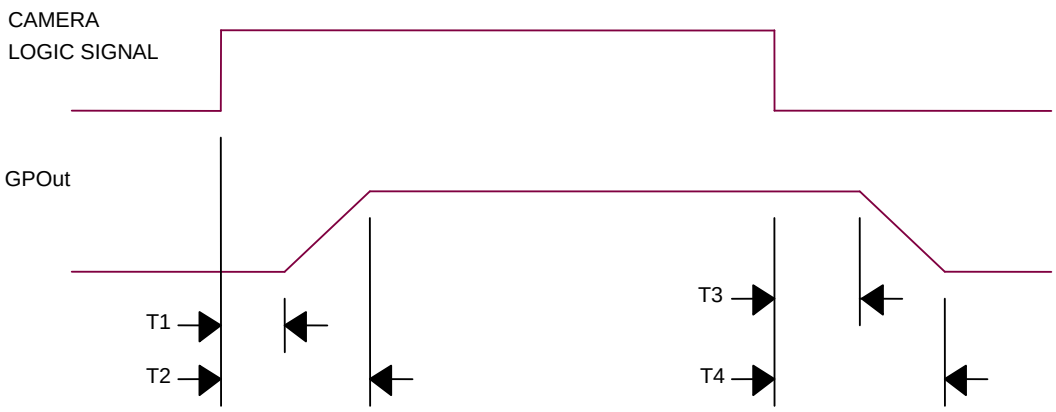


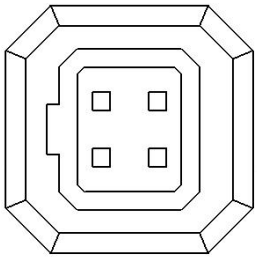
Figure 29: Prosilica GT output timing diagram

Various Out VCC values and load values will influence the timing response of the trigger as indicated in the following table.

OUT VCC	OUT ICC	R LOAD	V LOAD	R POWER DISSIPATION	T1	T2	T3	T4
5V	0.8mA	500Ω	4.2V	3.5mW	1.2µs	5.4µs	5.6µs	64µs
5V	1.7mA	2.4KΩ	4.0V	6.7mW	1.2µs	5.4µs	4.4µs	34µs
12V	2.1mA	5KΩ	10.4V	21.6mW	1.2µs	10µs	4µs	47µs
24V	1.8mA	10KΩ	18.4V	33.9mW	1.2µs	15µs	3.4µs	70µs

Table 14: Prosilica GT trigger circuit values

Lens control port



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

Both lens types use the same standard connector, which is 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, and therefore the relevant camera control attributes will not function. If this occurs, disconnect the camera power supply or POE connection and reconnect again.

Note

Video-type auto iris lenses are not supported.

Motorized CCTV lenses are not supported. See the Prosilica GX family for this lens support.

****Read lens descriptions carefully when 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.

DC-Iris Lenses

Any standard DC type auto iris lens will operate with the Prosilica GT. Tested by AVT models include the Fujinon DV10x8SA-SA1L, Computar HG2Z0414FC-MP, and Pentax C61227DCPS.

DC type auto iris lenses are continuously driven by a [0 - 3.3] voltage 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, 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*.

The control attributes for P-iris controls are described further in the **AVT Prosilica GigE Camera and Driver Attributes** document online:

http://www.alliedvisiontec.com/fileadmin/content/PDF/Software/Prosilica_software/Prosilica_firmware/AVT_Camera_and_Driver_Attributes.pdf

P-Iris Lenses

P-iris (Precise iris) lenses allow the camera to adjust to an exact F-number without drift, through the usage of stepper motor. The host system knows the exact position of the iris at all times, allowing for a closed loop system. This allows much better automated adjustment of the iris and ability to combine iris control with auto exposure and auto gain.

Operation

1. Connect a P-Iris lens to the camera before powering up the camera.
2. Power up camera, 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 below. 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 below.
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*.

The control attributes for P-iris controls are described further in the **AVT Prosilica GigE Camera and Driver Attributes** document online:

http://www.alliedvisiontec.com/fileadmin/content/PDF/Software/Prosilica_software/Prosilica_firmware/AVT_Camera_and_Driver_Attributes.pdf

Supported P-Iris lenses

Note

This is not a comprehensive list. New lenses from Kowa, Schneider, Computar, and Fujinon are available. Please contact the lens manufacturer for more information.

LM35JC5MM

Manufacturer: Kowa
Focal length: 35 mm
Optical format: 2/3"
Mount: C

P-iris frequency: 200
P-iris num steps: 190
Suitable camera: GT1290, GT1380, GT1600, GT1910, GT1920, GT2450

F-number	2	2	2.08	2.22	2.49	2.99	3.95	5.48	6.80	9.18	13.60	24.48	45.47
LensPIris Position	0	20	40	60	80	100	120	140	150	160	170	180	190

LM16JC5MM-IR

Manufacturer: Kowa
Focal length: 16 mm
Optical format: 2/3"
Mount: C

P-iris frequency: 200
P-iris num steps: 66
Suitable camera: GT1290, GT1380, GT1600, GT1910, GT1920, GT2450

F-number	1.41	1.56	1.68	1.82	2.00	2.23	2.55	2.98	3.64	4.75	6.46	9.80	19.79
LensPIris Position	0	10	15	20	25	30	35	40	45	50	55	60	65

LMVZ3510M

Manufacturer: Kowa
Focal length: 3.5-10 mm
Optical format: 1/2"
Mount: CS

P-iris frequency: 200
P-iris num steps: 69
Suitable camera: GT1290

F-number	1.61	1.61	1.66	1.84	2.05	2.31	2.67	3.15	3.89	5.13	7.61	15.14	31.39
LensPIris Position	0	6	12	18	24	30	36	42	48	54	60	66	69

LMVZ9020M

Manufacturer: Kowa
Focal length: 9-20 mm
Optical format: 1/2″
Mount: CS

P-iris frequency: 200
P-iris num steps: 69
Suitable camera: GT1290

F-number	1.63	1.72	1.87	2.05	2.27	2.52	2.85	3.27	3.85	4.71	6.10	8.83	11.49
LensPIris Position	0	6	12	18	24	30	36	42	48	54	60	66	69

AG3Z3112KCS-MPIR

Manufacturer: Computar
Focal length: 3.1-8 mm
Optical format: 1/2.7″
Mount: CS

P-iris frequency: 200
P-iris num steps: 71
Suitable camera: GT1290

F-number	1.2	1.2	1.4	1.5	1.8	2	2.4	3	4.1	6	11	40	75
LensPIris Position	0	6	12	18	24	30	36	42	48	54	60	66	67

AG4Z1214KCS-MPIR

Manufacturer: Computar
Focal length: 12.5-50 mm
Optical format: 1/2.7″
Mount: CS

P-iris frequency: 200
P-iris num steps: 71
Suitable camera: GT1290

F-number	1.7	1.7	1.8	2	2.1	2.3	2.9	3.5	4.7	7	11	25	48
LensPIris Position	0	6	12	18	24	30	36	42	48	54	60	66	68

M13VP288IR

Manufacturer: Tamron
Focal length: 2.8-8 mm
Optical format: 1/3”
Mount: CS

P-iris frequency: 200
P-iris num steps: 82
Suitable camera: GT1290

F-number	1.2	1.4	2	2.8	4	5.6	8	10	11	16	22	32	close
LensPIris Position	0	17	36	47	55	62	67	70	71	74	76	77	82

Gigabit Ethernet port

The **Prosilica GT** can be powered through the 12 pin Hirose Camera I/O port, or through the Gigabit Ethernet port by using any standard power over Ethernet (POE) supported network card, switch, or injector.

AVT recommends using Category 5e or Category 6 compatible cabling for best performance.

www

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

http://www.alliedvisiontec.com/us/support/downloads/product-literature/prosilica-GT.html

Note

See **Hardware Selection for AVT GigE Cameras** application note for a list of recommended Ethernet adaptors.

http://www.alliedvisiontec.com/fileadmin/content/PDF/Support/Application_Notes/Hardware_Selection_for_AVT_GigE_Cameras.pdf

A standard Ethernet adapter is available from AVT.
AVT P/N: 02-3002A
Model: Intel Pro 1000/PT

A dual port POE Ethernet adapter is available from AVT.
AVT 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).

Camera trigger

Input: Opto-isolated and non-isolated internal circuit

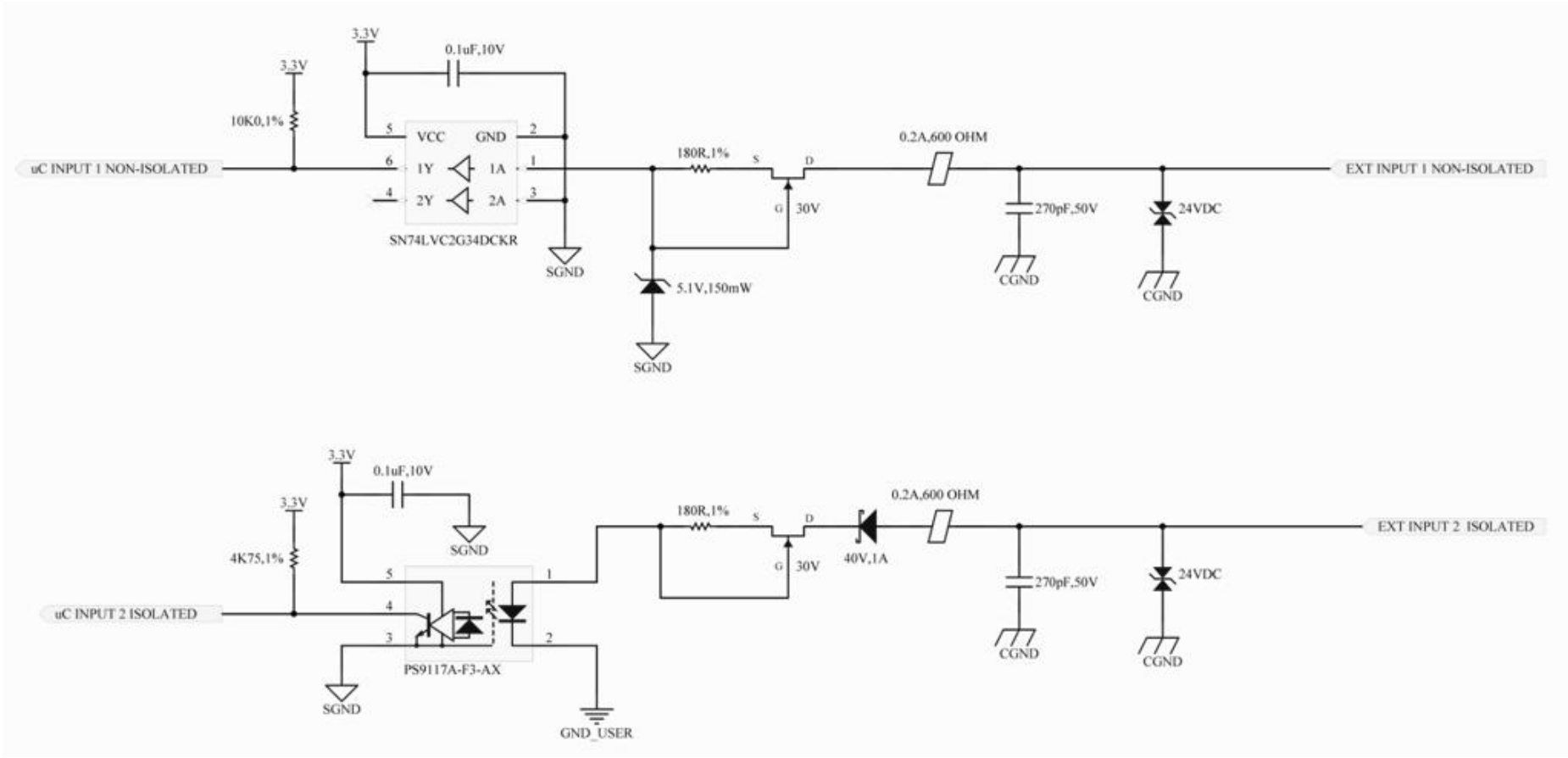


Figure 30: Prosilica GT internal circuit diagram for input trigger

Output: Non-isolated internal circuit

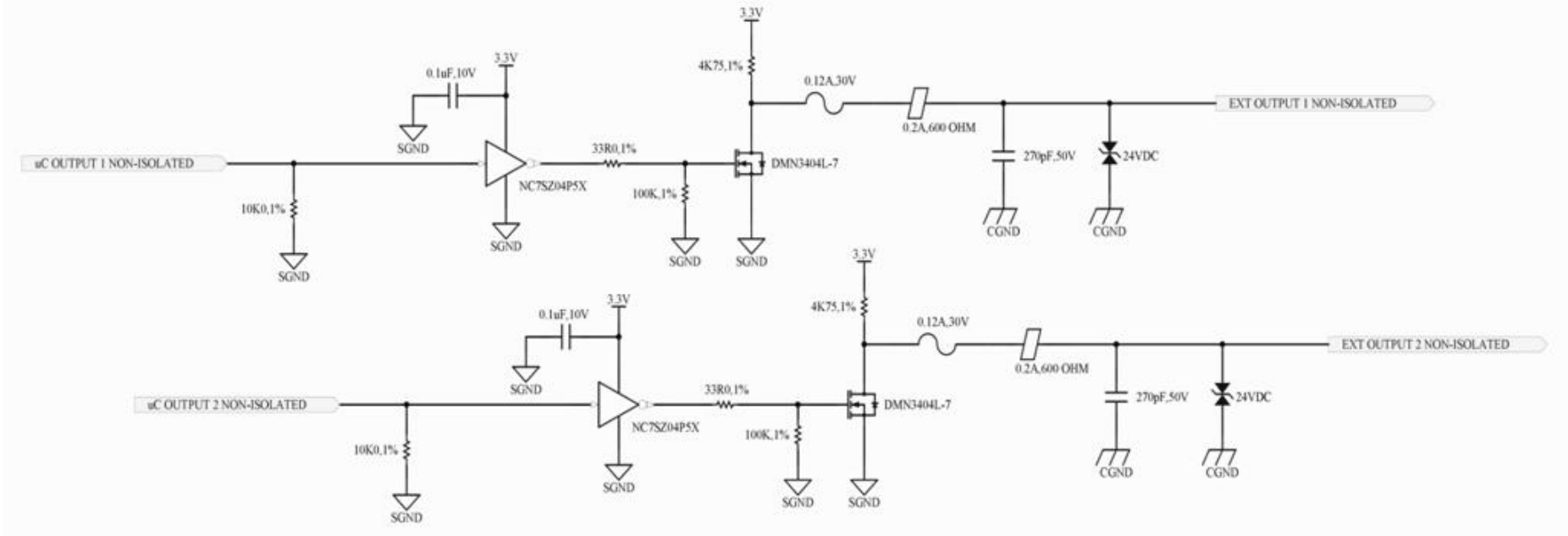


Figure 31: Prosilica GT internal circuit diagram for non-isolated output trigger

Output: Opto-isolated internal circuit

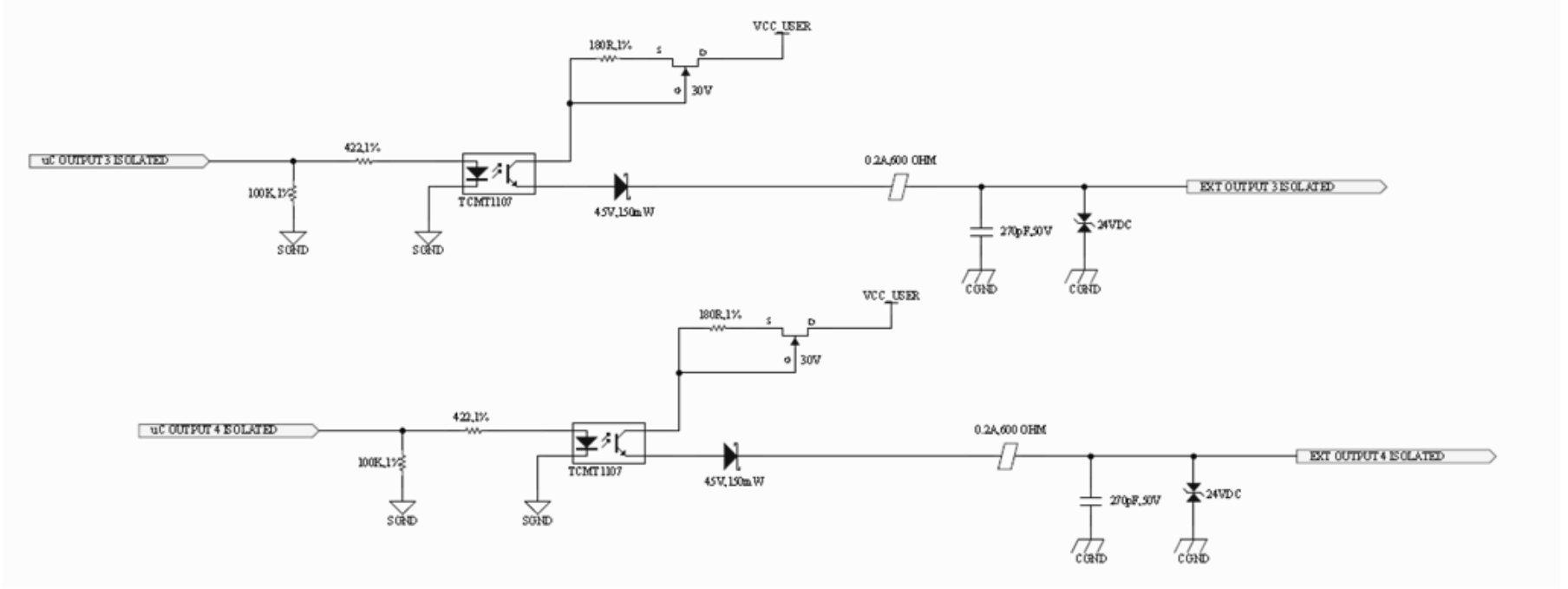


Figure 32: Prosilica GT internal circuit diagram for opto-isolated output trigger

Timing diagram

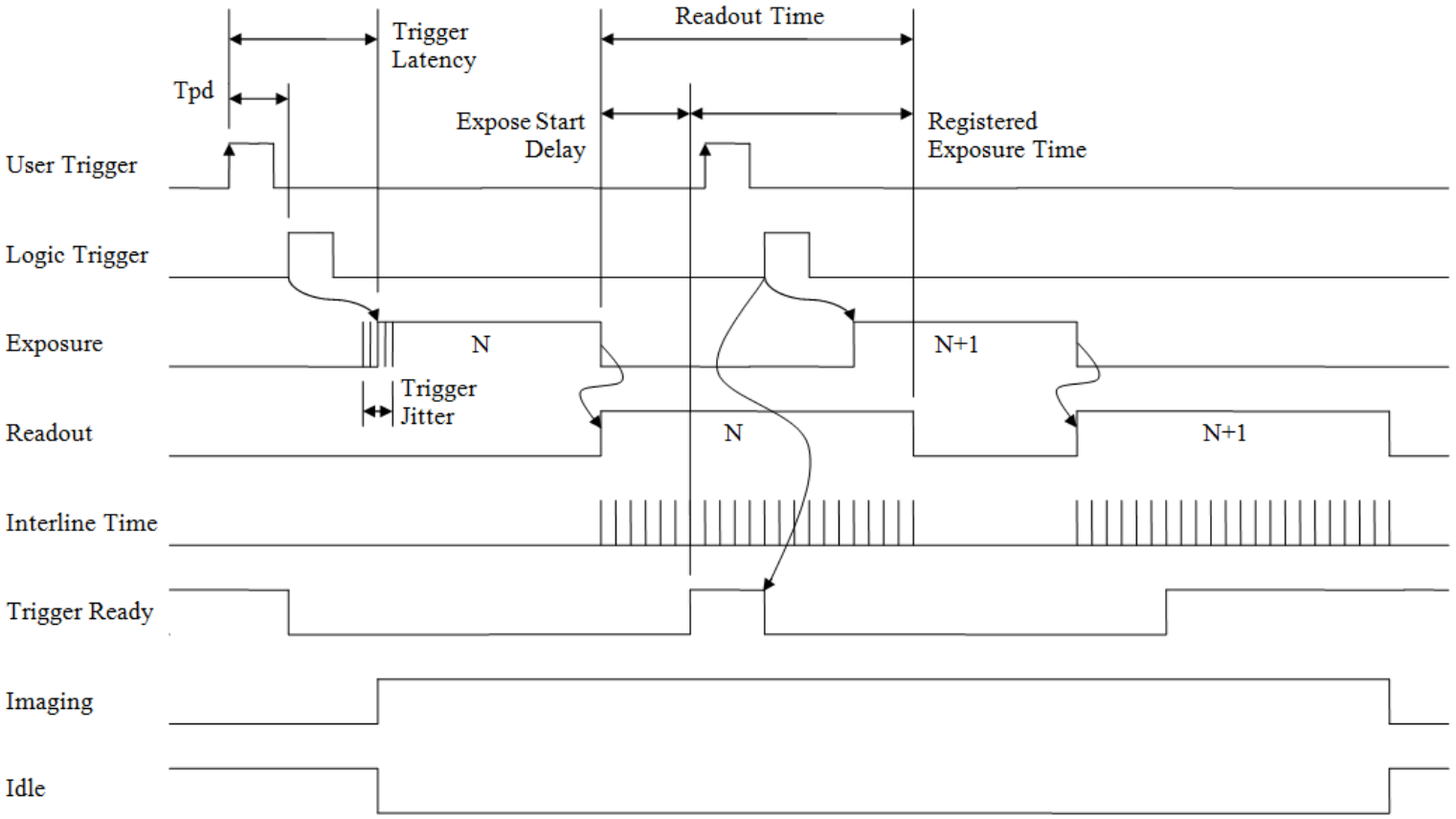


Figure 33: Prosilica GT internal signal timing waveforms

Signal definitions

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	… is high when the camera image sensor is integrating light.
Readout	… is 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
Trigger Ready	… indicates to the user that the camera will accept the next trigger.
Registered Exposure Time	… is the Exposure Time value currently stored in the camera memory.
Exposure Start Delay	… is the 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	… is the time between sensor row readout cycles.
Imaging	… is high when the camera image sensor is either exposing and/or reading out data.
Idle	… is high if the camera image sensor is not exposing and/or reading out data.

Table 15: 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 11.

- 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.
- **Expose 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 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, then the User Trigger signal should be applied as soon as a valid Trigger Ready is detected.

In this case, Trigger Latency and Trigger Jitter can be up to 1 line time since Exposure must always begin on an Interline boundary.

Firmware update

Firmware updates are carried out via the Ethernet connection. AVT 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 AVT website:
http://www.alliedvisiontec.com/us/support/downloads/firmware.html

Note

To determine the current firmware version loaded onto the camera, read the camera's Device Firmware attribute using the **GigE Sample Viewer** or third party applications such as NI Vision Acquisition Software.

Resolution and ROI frame rates

This section charts the resulting frame rate from changing sensor region of interest (ROI), from full image to a single line.

Note

- Data was generated using **StreamBytesPerSecond = 115 MB/S** (camera default) and an 8 bit pixel format. **Frame rates may be higher on hosts capable of full 124 MB/S.**
- **ROIs are center image**, where attribute **RegionY = (full sensor height – ROI height)/2**, for maximum speed advantage on a quad-tap CCD sensor.
- There is no frame rate increase with reduced width.
- BinningY 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

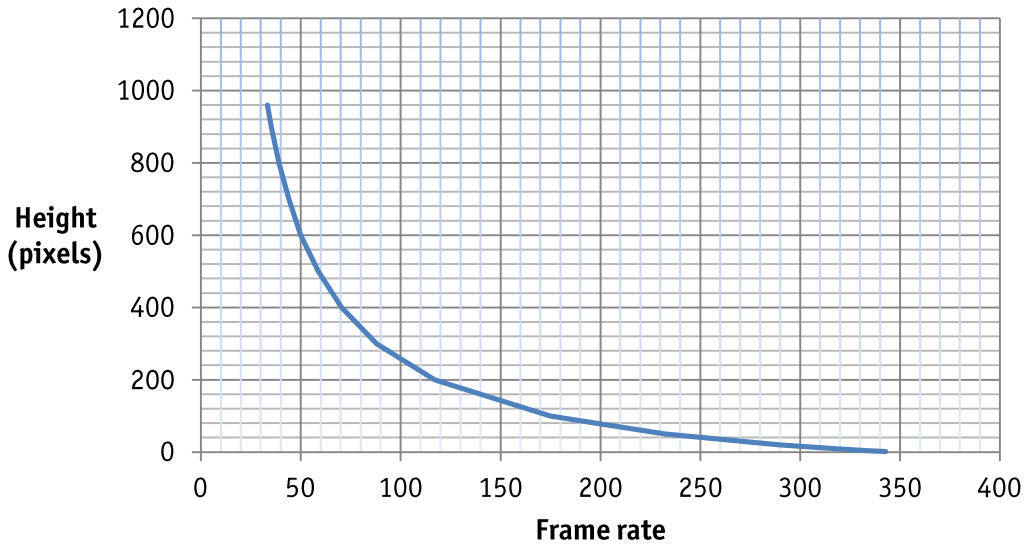


Figure 34: Frame rate vs. height, center region, for GT1290

Prosilica GT1380

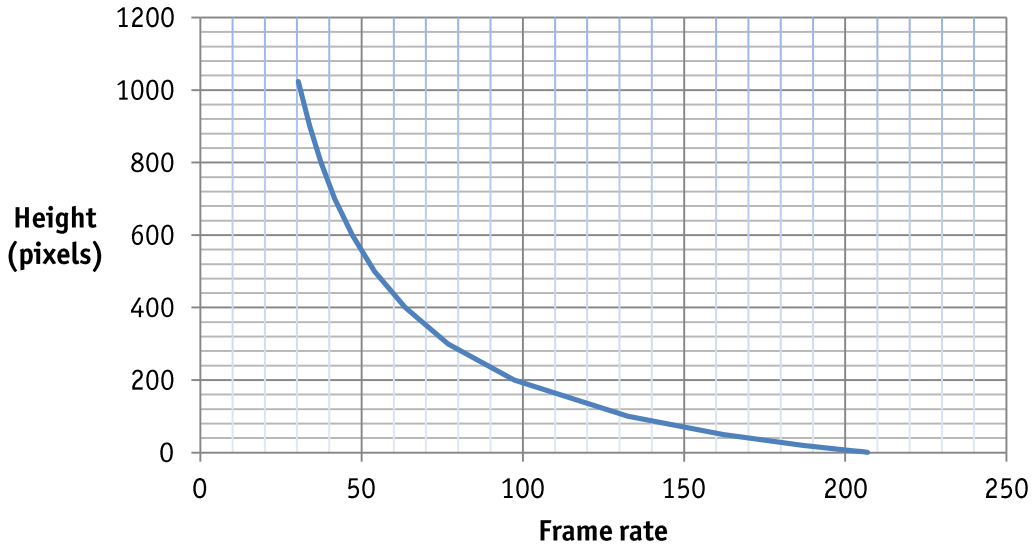


Figure 35: Frame rate vs. height, center region, for GT1380

Prosilica GT1600

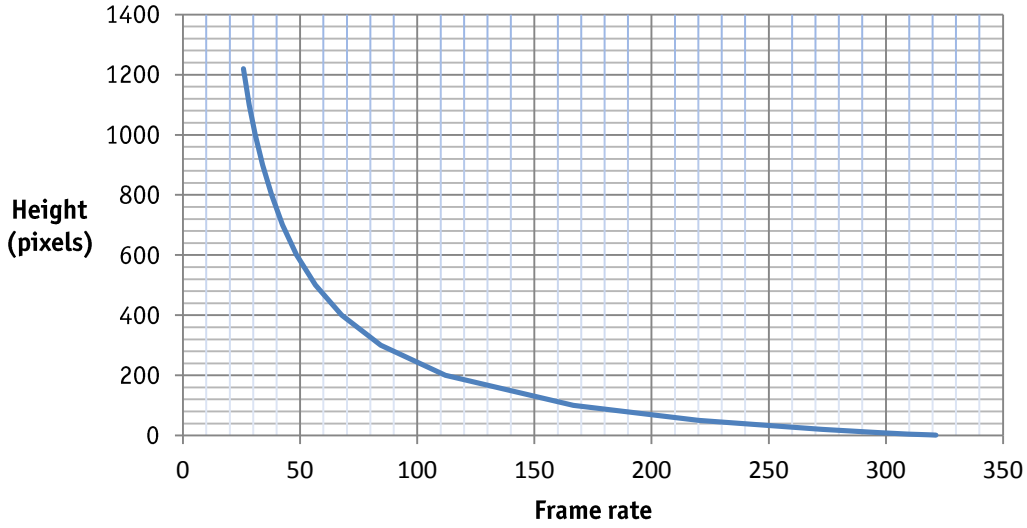


Figure 36: Frame rate vs. height, center region, for GT1600

Prosilica GT1660

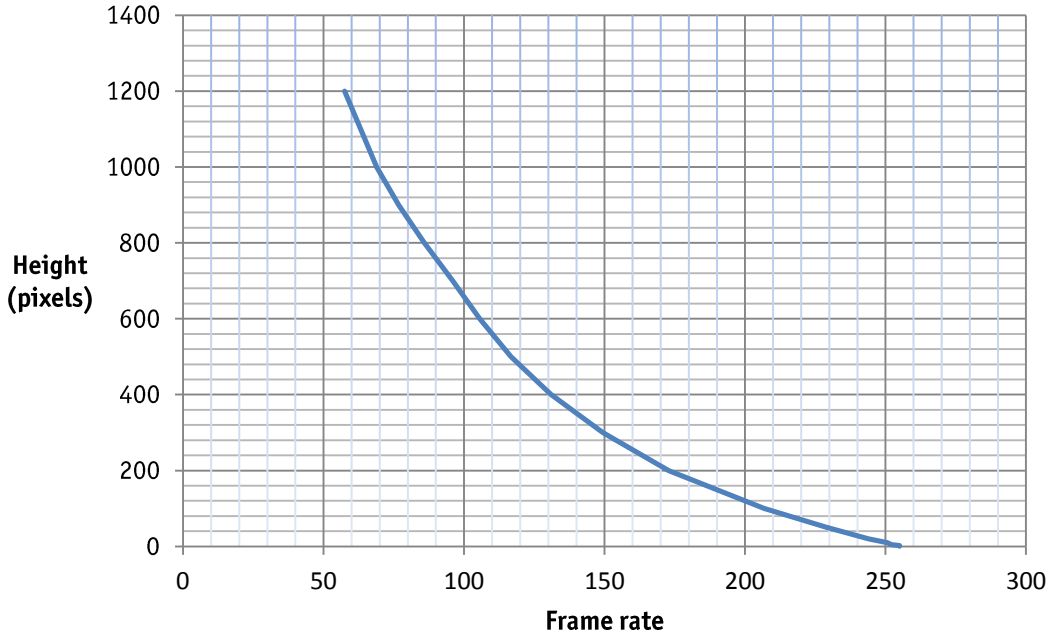


Figure 37: Frame rate vs. height, center region, for GT1600

Prosilica GT1910

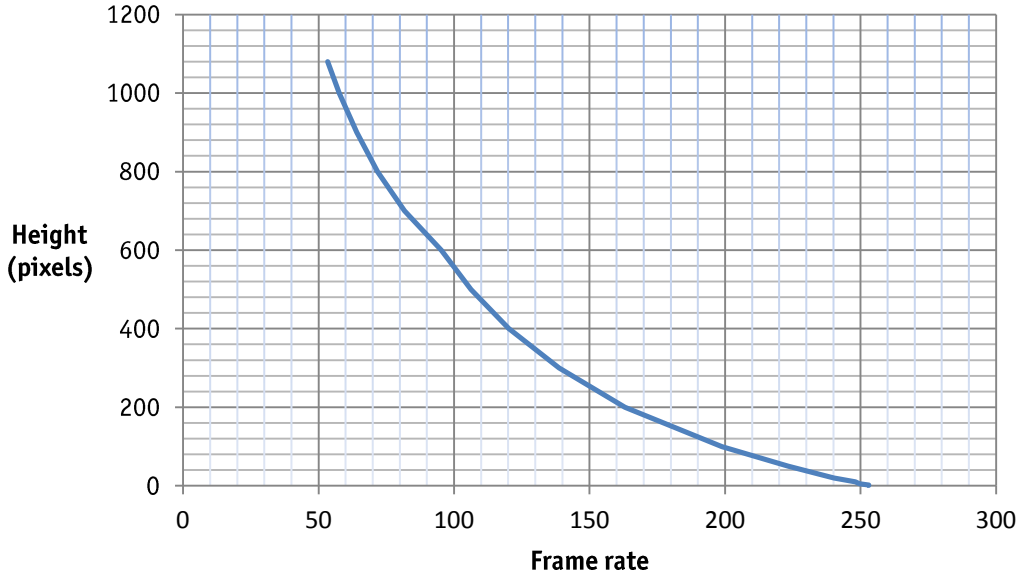


Figure 38: Frame rate vs. height, center region, for GT1910

Prosilica GT1920

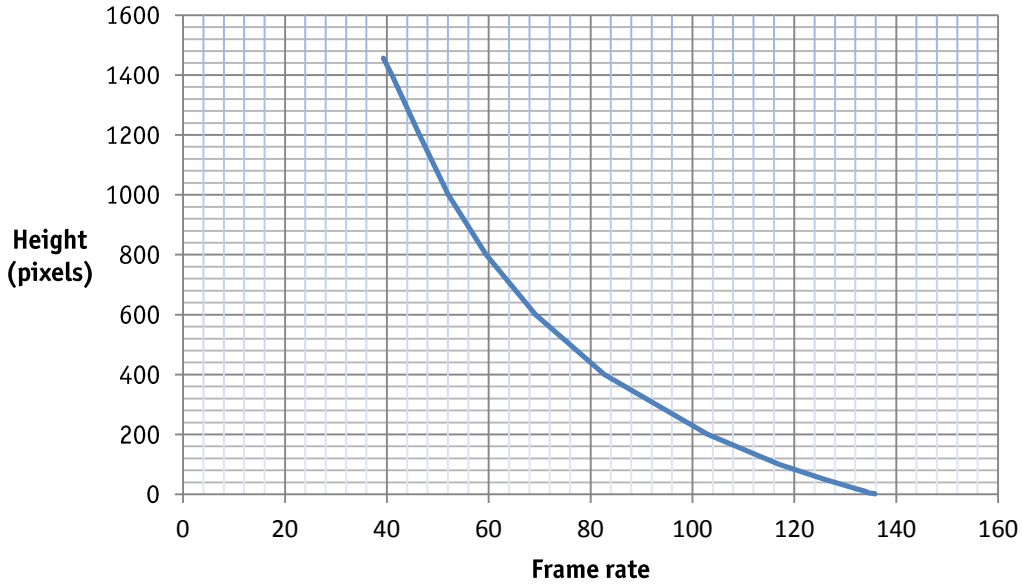


Figure 39: Frame rate vs. height, center region, for GT1920

Prosilica GT2300

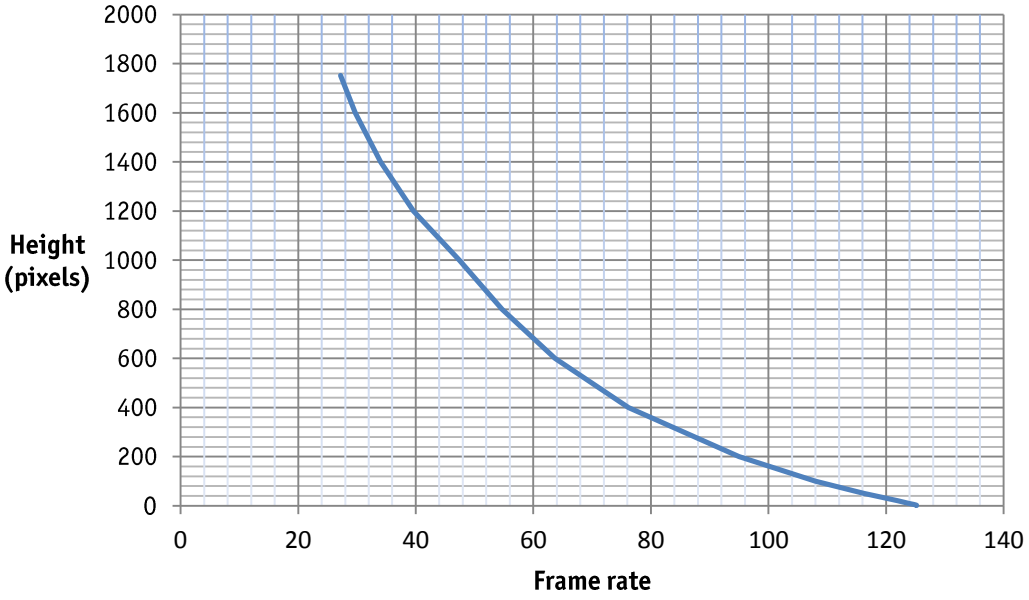


Figure 40: Frame rate vs. height, center region, for GT2300

Prosilica GT2450

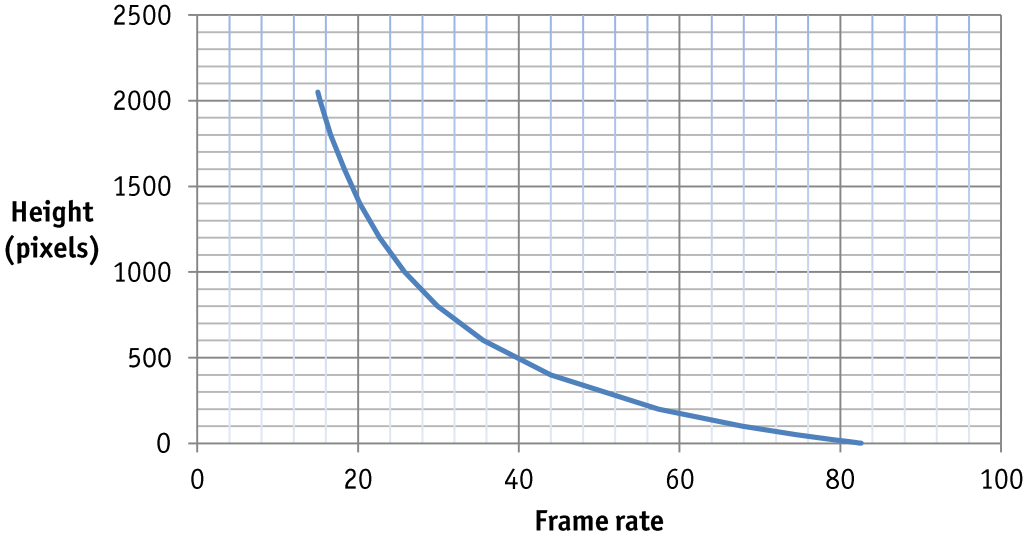


Figure 41: Frame rate vs. height, center region, for GT2450

Prosilica GT2750

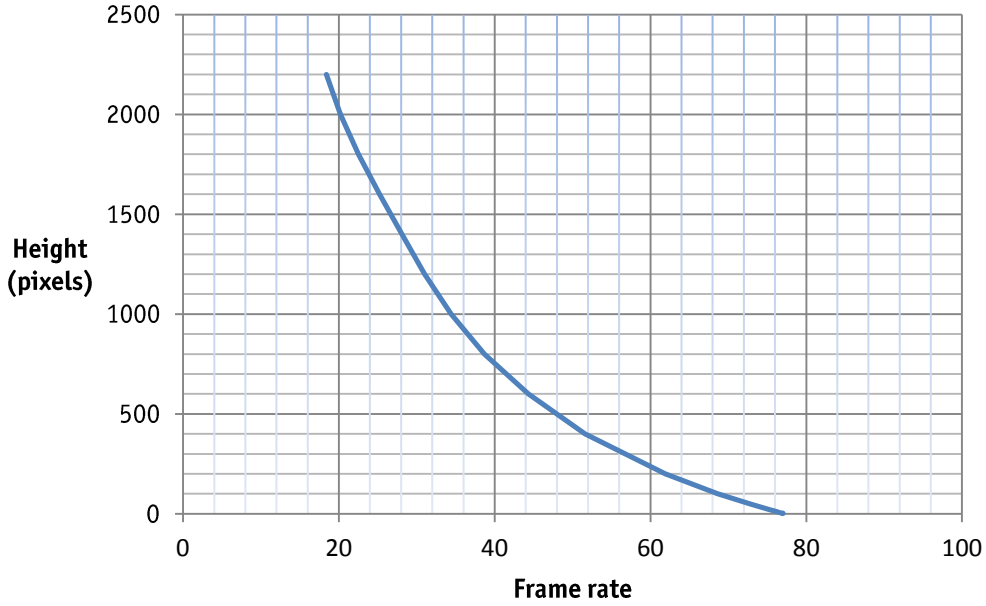


Figure 42: Frame rate vs. height, center region, for GT2750

Prosilica GT3300

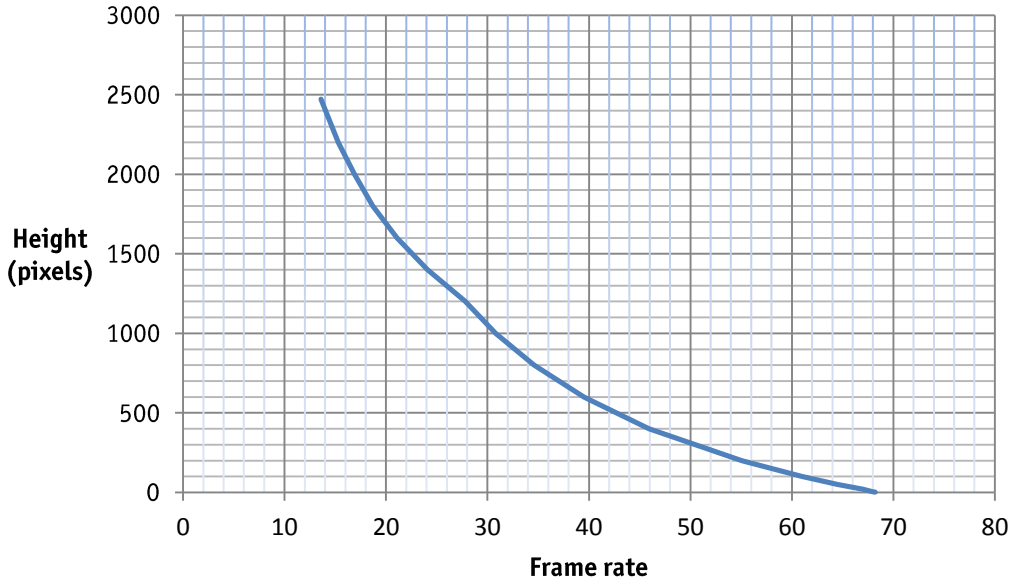


Figure 43: Frame rate vs. height, center region, for GT3300

Prosilica GT model comparison

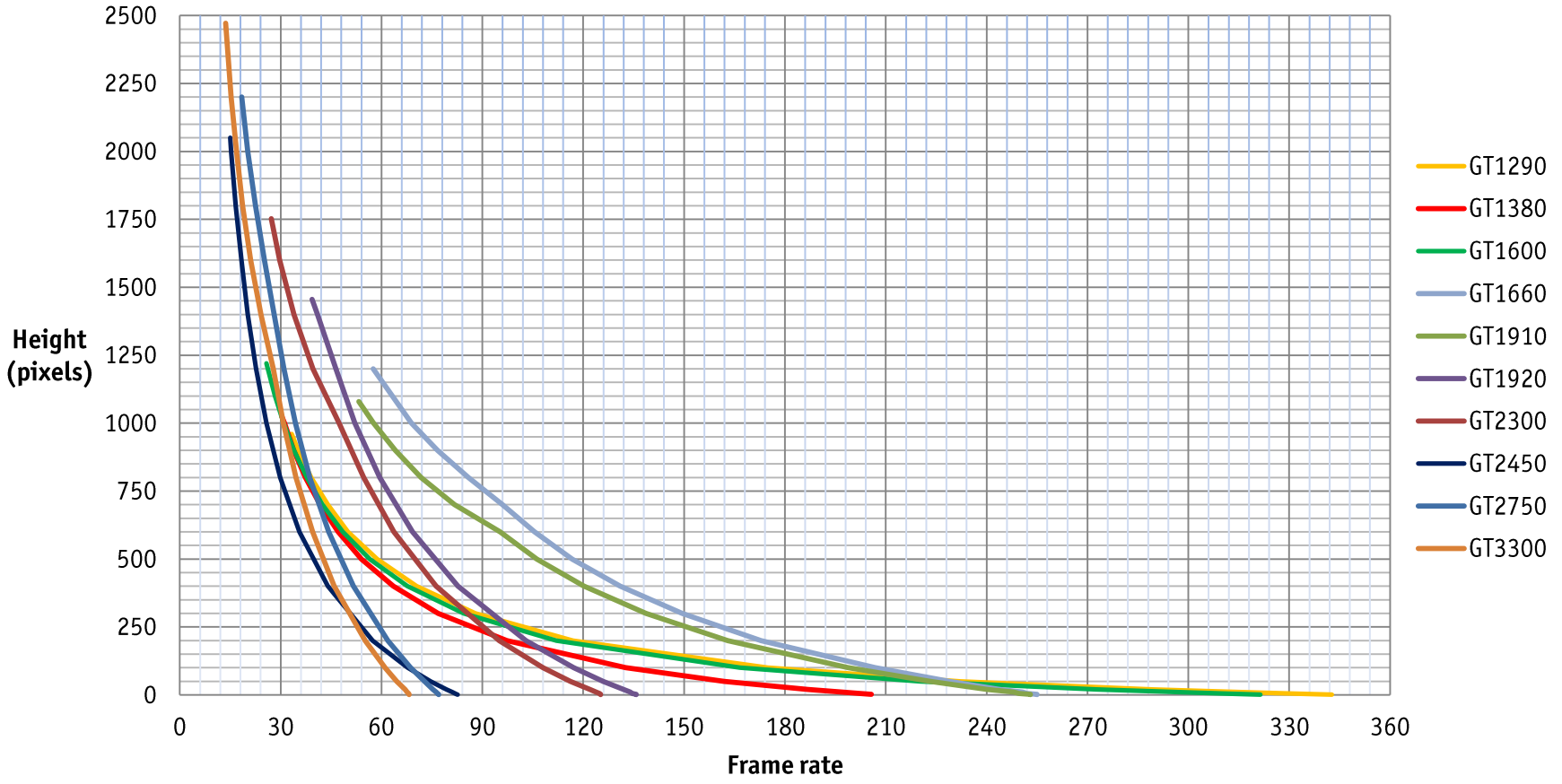


Figure 44: Frame rate vs. height model comparison.

Additional references

Prosilica GT webpage

http://www.alliedvisiontec.com/us/products/cameras/gigabit-ethernet/prosilica-GT.html

Prosilica GT Documentation

http://www.alliedvisiontec.com/us/support/downloads/product-literature/prosilica-GT.html

AVT GigE PvAPI SDK

http://www.alliedvisiontec.com/us/products/software/avt-pvapi-sdk.html

AVT Knowledge Base

http://www.alliedvisiontec.com/us/support/knowledge-base.html

AVT Case Studies

http://www.alliedvisiontec.com/us/products/applications.html

Prosilica GT Firmware

http://www.alliedvisiontec.com/us/support/downloads/firmware.html