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GO-5100M-PGE

Technical Datasheet

See the possibilities

1xCMOS

Apex Series

JAI's Go Series delivers an exceptional blend of small size, high versatility, and excellent performance, all at an entry-level price, making the cameras a perfect starting point for a wide range of machine vision applications.

CMOS technology, low-noise pixels, global shutters, sequencer functions, and other advanced features help ensure image quality and operational flexibility beyond entry-level expectations.

Specification Highlights

SENSOR:	1xCMOS	**SHUTTER:**	Global Shutter
FORMAT:	2/3"	**FRAME RATE:**	22 fps
PIXEL SIZE:	3.45 x 3.45 µm	**INTERFACE:**	GigE Vision 1-Cable (PoE)
LENS MOUNT:	C-Mount	**RESOLUTION MP:**	5.1 MP
SPECTRUM:	Monochrome (Visible + NIR)	**RESOLUTION WxH:**	2464 x 2056 px

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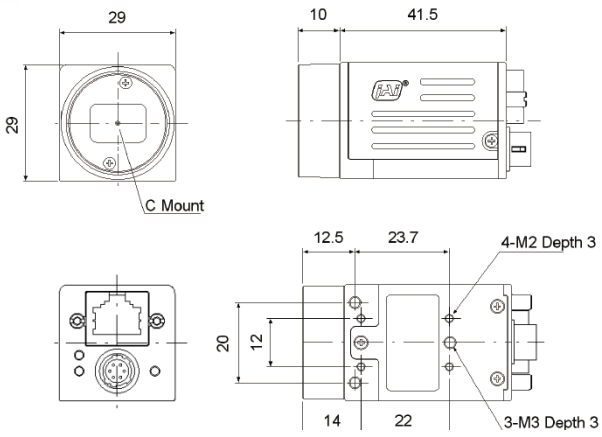
Specifications		GO-5100-PGE
Sensor		2/3" CMOS global shutter (IMX250)
Active pixels		2464 (h) x 2056 (v)
Frame rate, full frame		22.7 frames/sec. @ 8-bit
Active area		8.5 mm (h) x 7.09 mm (v) - 11.1 mm diagonal
Pixel size		3.45 µm x 3.45 µm
System clock		74.25 MHz (for pulse generator)
Read-out modes		
Full ROI (mono)		2464 (h) x 2056 (v) up to 22.7 fps H: 16 to 2464 pixels in 16 pixel steps V: 4 to 2056 lines in 1 line steps
ROI (color)		H: 16 to 2464 pixels in 16 pixel steps V: 4 to 2056 lines in 2 line steps
Binning		1x2, 2x1, 2x2 (monochrome only)
EMVA 1288 Parameters Absolute sensitivity Maximum SNR		12-bit output format Mono: 3.78 p Color: 3.99 p (λ = 525 nm) Mono: 40.27 dB Color: 40.22 dB
Traditional SNR*	mono color	>60 dB (0 dB gain, 10-bit) >60 (0 dB gain, 10-bit, green)
Video signal output	mono color	8/10/12-bit monochrome† 8/10/12-bit raw Bayer†
Video modes		Normal, Single ROI, Multi ROI, Sequencer (Trigger & Command), Delayed Readout
Gain		Manual/auto 0 dB to +24 dB
White balance (GO-5100C)		Manual, one-push auto, or continuous (3000K to 9000K)
Gamma/LUT		0.45, 0.6, 1.0 or 256-point LUT
Trigger input		Opto In (1), Pulse Generator, Software, NAND Out (2), User Output (2), Action (2)
Exposure modes		Timed/EPS, Trigger Width, Auto
Electronic shutter		Timed: 14.7 µs to 8 sec. in 1 µs steps Trigger Width: 14.7 µs to ∞ sec. in 1 µs steps
Auto Level Control (ALC)		Shutter range from 100 µs to 44.053 ms, gain range from 0 dB to +24 dB. Tracking speeds and max. values adjustable.
Pre-processing functions		Edge enhancer (mono), shading correction, blemish compensation (256 pixels)
Operating temp. (ambient)		-5°C to +45°C (20 to 80% non-condensing)
Storage temp. (ambient)		-25°C to +60°C (20 to 80% non condensing)
Vibration		10G (20 Hz to 200 Hz, XYZ directions)
Shock		80G
Regulations		CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B, RoHS/WEEE
Shock		80 G
Regulations		CE (EN61000-6-2, EN61000-6-3), FCC Part 15 class B, RoHS, WEEE
Power	6-pin PoE	+12V to +24V DC ± 10%. 3.3 W typical @ +12 V +36V to +57V DC. 3.99 W typical @ +48 V
Lens mount		C-mount
Dimensions (H x W x L)		29 mm x 29 mm x 41.5 mm (excl. lens mount)
Weight		46 g
Ordering Information		
GO-5100M-PGE GO-5100C-PGE		Monochrome camera with GigE Vision Color camera with GigE Vision

*Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time.

†12-bit output available in video processing bypass mode. See manual for details.

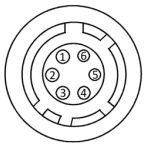
Dimensions



Outside size tolerance ± 0.3 mm

Connector pin-out

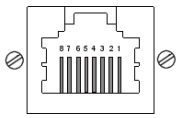
DC In / Trigger



HIROSE HR-10A-7R-6PB(73)

Pin	Signal
1	DC in +12V to +24V
2	Opto In 1
3	Opto Out 1
4	Opto Out 2
5	Opto Common
6	Ground

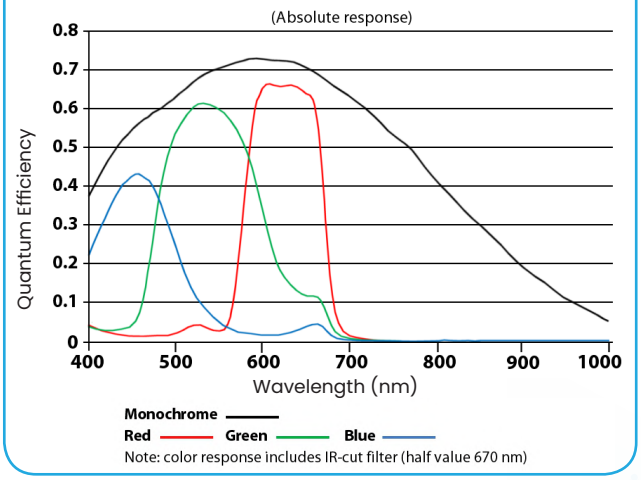
GigE Vision Interface



RJ-45 with locking screws

Pin	Signal
1	TRD+(0)
2	TRD-(0)
3	TRD+(1)
4	TRD+(2)
5	TRD -(2)
6	TRD-(1)
7	TRD+(3)
8	TRD-(3)

Spectral response



Note: color response includes IR-cut filter (half value 670 nm)

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Product Highlights

- 5.1-megapixel 2/3″ CMOS imager (global shutter)
- Up to 22.7 fps at full resolution
- 3.45 µm square pixels
- Small size (29 x 29 x 41.5 mm, excluding lens mount)
- 8/10/12-bit output* in a choice of monochrome or raw Bayer color models
- Exposure control from 14 µs to 8 seconds in 1 µs steps
- 2X binning for increased sensitivity (monochrome only)
- Single and multi-ROI modes for flexible windowing and use of smaller optics
- Automatic Level Control (ALC) for dynamic lighting conditions
- Accepts power over GigE Vision interface or separate 6-pin connector
- C-mount lens mount

Additional Product Images