

GO-2400M-USB

Technical Datasheet

IMX174



See the possibilities



Apex Series

USB
VISION

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.

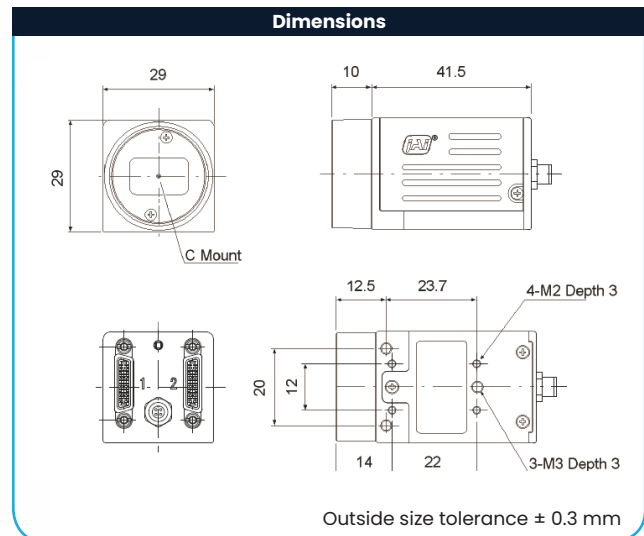
CMOS technology, low-noise pixels, global shutters, sequencer functions, and other advanced features help ensure image quality and operational flexibility beyond entry-level expectations.

Specification Highlights



SENSOR: IMX174
FORMAT: 1/1.2"
PIXEL SIZE: 5.86 x 5.86 μm
LENS MOUNT: C-Mount
SPECTRUM: Monochrome
(Visible + NIR)

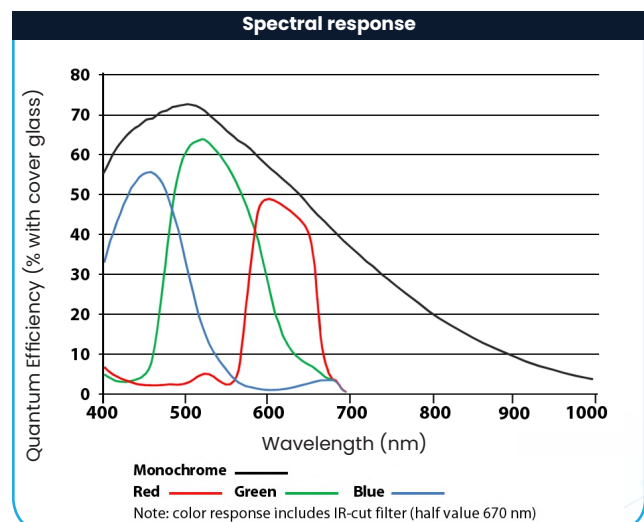
SHUTTER: Global Shutter
FRAME RATE: 159 fps
INTERFACE: USB3 Vision (PoUSB)
RESOLUTION MP: 2.4 MP
RESOLUTION WxH: 1936 x 1216 px

Specifications		GO-2400-USB
Sensor		1/1.2" CMOS global shutter (IMX174)
System clock		74.25 MHz (for pulse generator)
Frame rate, full frame		159 frames/sec. @ 8-bit
Active area		11.3 mm (h) x 7.13 mm (v), 13.4 mm diagonal
Cell size		5.86 μm (h) x 5.86 μm (v)
Active pixels		1936 (h) x 1216 (v)
Read-out modes		
Full ROI (mono)		1936 (h) x 1216 (v) up to 159 fps H: 16 to 1936 pixels in 16 pixel steps V: 1 to 1216 lines in 1 line steps
ROI (color)		H: 16 to 936 pixels in 16 pixel steps V: 2 to 1216 lines in 2 line steps
Binning		1x2, 2x1, 2x2 (monochrome only)
EMVA 1288 Parameters		12-bit output format
Absolute sensitivity (mono)		9.44 p ($\lambda = 525 \text{ nm}$)
Absolute sensitivity (color)		10.86 p ($\lambda = 525 \text{ nm}$)
Maximum SNR (mono)		45.16 dB
Maximum SNR (color)		45.23 dB
Traditional SNR*	mono	>60 dB (0 dB gain)
	color	>60 dB (0 dB gain, green)
Video signal output	mono	8/10/12-bit monochrome [†]
	color	8/10/12-bit raw Bayer [†]
Gain control		Manual/auto 0 dB to +24 dB
Gamma		0.45, 0.6, 1.0 or 256-point LUT
White balance (GO-2400C)		Manual, one-push auto, or continuous (3000K to 9000K)
Synchronization		Internal
Video modes		Normal, Single ROI, Multi ROI, Sequence (Trigger & Command)
Trigger input		Opto In, Pulse Generator, Software, NAND Out (2), User Output (2), Action Commands (2)
Trigger modes		EPS, Trigger Width, Sequencer
Electronic shutter		
Timed exposure		19.7 μs to 8 sec in 1 μs steps
Auto shutter		100 μs to 8 sec
Auto level control (ALC)		Shutter range from 100 μs to 8 sec, gain range from 0 dB to +24 dB Tracking speeds and max values adjustable
Pre-processing functions		Flat-field correction, color shading correction (GO-2400C), blemish compensation (256 pixels)
Operating temperature		-5°C to +45°C
Storage temperature		-25°C to +60°C
Humidity		20 – 80% non-condensing
Vibration		10 G (20 Hz to 200 Hz XYZ)
Shock		80 G
Regulations		CE (EN61000-6-2, EN61000-6-3), FCC Part 15 Class B, RoHS/WEEE
Power	6-pin connector	12V to 24V DC $\pm 10\%$. 4.08 W @ 12V Bus power: 4.4 W @ 5V
	USB 3.0	
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-2400M-USB		Monochrome camera with USB3 Vision
GO-2400C-USB		Color camera with USB3 Vision



Connector pin-out

DC In / Trigger		USB 3.0 Interface [*]	
			
HIROSE HR10A-7R-6PB(73)		Micro B type - ZX3600-B-10P or equiv.	
Pin	Signal	No	I/O Name Note
1	+12V to +24V DC input	1	I Power Power (VBUS)
2	Opto In 1	2	I/O DM USB2.0 Differential pair (-)
3	Opto Out 1	3	I/O DP USB2.0 Differential pair (+)
4	Opto Out 2	4	- OTG ID USB OTG ID for identifying lines
5	Opto Common	5	- GND GND
6	GND	6	O FX3 SSTXM USB3.0 Signal Transmission line (-)
		7	O FX3 SSTXP USB3.0 Signal Transmission line (+)
		8	- GND GND
		9	I FX3 SSRXP USB3.0 Signal Receiving line (-)
		10	I FX3 SSRXM USB3.0 Signal Receiving line (+)



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

[†]12-bit output available in IP Bypass mode. See manual for details.

Product Highlights

- 2.35-megapixel 1/1.2" CMOS imager (global shutter)
- Up to 159 fps at full resolution
- 5.86 μm square pixels
- Small size (29 x 29 x 41.5 mm, excluding lens mount)
- 8/10-bit output in choice of monochrome or raw Bayer models
- Exposure control from 6 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 USB3 Vision interface or via separate 6-pin connector
- C-mount lens mount

Additional Product Images



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