

# GOX-5102M-USB

## Technical Datasheet

IMX250



See the possibilities



## Apex Series



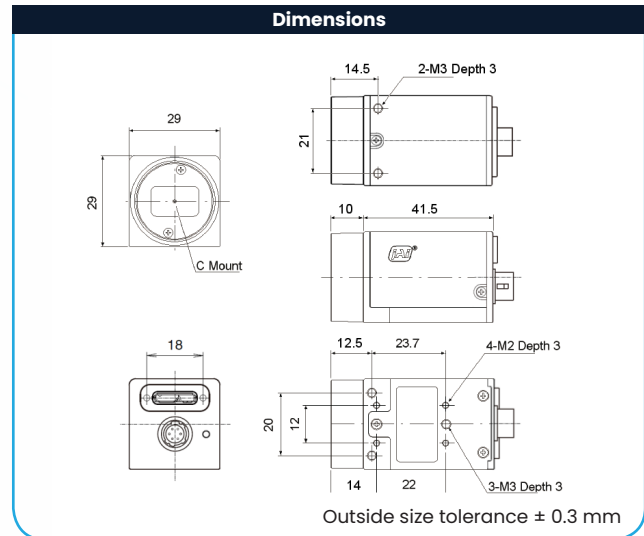
The Go-X Series offers compact, attractively-priced area scan cameras with a blend of features, image quality and industrial grade reliability that is in high demand for the next generation of machine vision systems.

The Go-X Series incorporates the most popular Sony Pregius and Pregius S global shutter CMOS sensors, and several Starvis CMOS sensors with rolling shutter technology. Resolutions range from 2.3 to 24.5 megapixels with a choice of USB3 Vision, GigE Vision (1000BASE-T or 5GBASE-T), or CoaXPress interfaces.

### Specification Highlights

<b>SENSOR:</b>	IMX250	<b>SHUTTER:</b>	Global Shutter
<b>FORMAT:</b>	2/3"	<b>FRAME RATE:</b>	74 fps
<b>PIXEL SIZE:</b>	3.45 x 3.45 $\mu\text{m}$	<b>INTERFACE:</b>	USB3 Vision (PoUSB)
<b>LENS MOUNT:</b>	C-Mount	<b>RESOLUTION MP:</b>	5 MP
<b>SPECTRUM:</b>	Color (Visible)	<b>RESOLUTION WxH:</b>	2448 x 2048 px

Specifications	GOX-5102-USB
Sensor	2/3" CMOS global shutter (IMX250)
Active pixels	2448 (h) x 2048 (v)
Frame rate, full frame	74 frames/sec. @ 8-bit mono/Bayer
Active area	8.45 mm (h) x 7.07 mm (v) - 11.01 mm diagonal
Pixel size	3.45 $\mu\text{m}$ x 3.45 $\mu\text{m}$
System clock	74.25 MHz (for pulse generator)
Read-out modes	
Full ROI (single)	2448 (h) x 2048 (v) up to 74 fps H: 96 to 2432 pixels in 16 pixel steps V: 8 to 2046 lines in 2 line steps
Binning	1x2, 2x1, 2x2
EMVA 1288 Parameters	10-bit output format
Absolute sensitivity	Mono: 3.37 p Color: 4.33 p ( $\lambda = 527 \text{ nm}$ )
Maximum SNR	Mono: 39.7 dB Color: 39.7 dB
Traditional SNR*	>60 dB mono, >60 dB color (0 dB gain, 10-bit)
Video signal output	Monochrome: 8/10/12-bits <sup>†</sup> Color: 8/10/12-bit Bayer <sup>†</sup>
Gain	Manual/auto 0 dB to +42 dB
White balance	Off, presets, or one-push/continuous AWB
Gamma/LUT	0.45 to 1.0 (9 steps) or 257-point programmable LUT
Synchronization	Internal
Video modes	Normal/Single ROI, Multi ROI, Sequencer (Trigger & Command)
Trigger input	Opto In, Pulse Generators (4), Software, NAND Out (2), User Output (4)
Exposure modes	Timed/EPS, RCT, Trigger Width, Auto
Electronic shutter	Timed: 14.73 $\mu\text{s}$ to 8 sec. in 1 $\mu\text{s}$ steps Auto: 100 $\mu\text{s}$ to 28 ms at full resolution
Auto level control (ALC)	Shutter range from 100 $\mu\text{s}$ to 28 ms, gain range from 0 dB to +42 dB. Tracking speeds and max. values adjustable.
Shading correction	Flat shading, color shading (color model)
Pre-processing functions	H & V flip (mirroring), blemish compensation, H & V decimation
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	80 G
Regulations	CE (EN 55032:2015 (CISPR32:2015), EN 55035:2017 (CISPR35:2016)), FCC Part 15 Class A, RoHS/WEEE, KC
Power	6-pin USB 3.0 +10V to +25V DC. 4.3 W typical @ +12 V +5V DC. 4.2 W typical @ +5 V
Lens mount	C-mount
Dimensions (H x W x L)	29 mm x 29 mm x 51.5 mm
Weight	62 g
Ordering Information	
GOX-5102M-USB	Monochrome camera with USB3 Vision interface
GOX-5102C-USB	Color camera with USB3 Vision interface



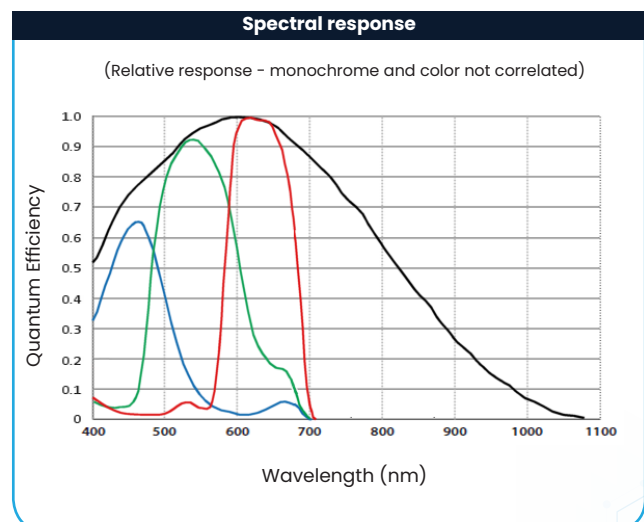
### Connector pin-out

#### 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	DC in +10V to +25V	1	I	VBUS IN	Power (VBUS)
2	Opto In+	2	I/O	DM	USB2.0 Differential pair (-)
3	Opto In-	3	I/O	DP	USB2.0 Differential pair (+)
4	Opto Out+	4	-	OTG ID	USB OTG ID for identifying lines
5	Opto Out-	5	-	GND	GND
6	Ground	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.

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

## Product Highlights

- Go-X Series delivers exceptional combination of price and performance
- 5.01-megapixel, 2/3" CMOS imager (global shutter)
- Up to 74 fps at full resolution (2448 x 2048)
- 3.45  $\mu\text{m}$  square pixels
- 8/10/12-bit\* output in choice of monochrome or raw Bayer color models
- ROI settings for added flexibility
- Horizontal/vertical image flip function, plus blemish correction and shading compensation
- Includes Sequencer function and Automatic Level Control (ALC) for dynamic lighting conditions
- Compact size with excellent shock and vibration resistance
- Accepts power over USB3 Vision interface or via separate 6-pin connector
- C-mount lens mount

\* Not all processing functions supported with 12-bit output.

## Additional Product Images



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