GOX-2402C-USB
Technical Datasheet

IMX392

JAI ®
See the possibilities

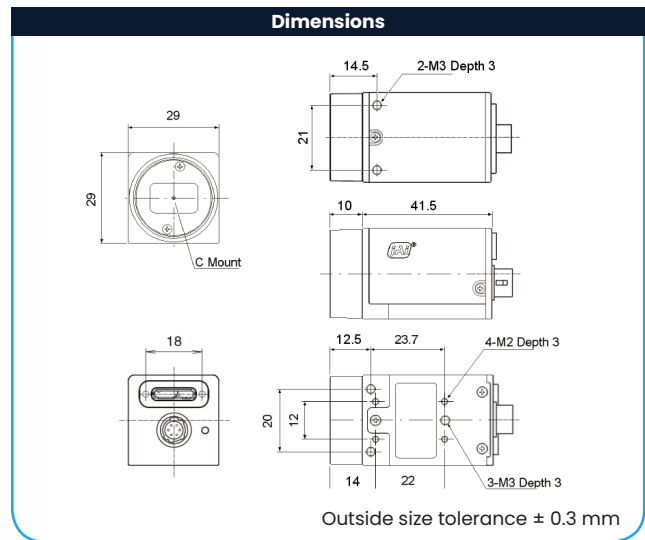**USB3 VISION** ™

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

SENSOR:	IMX392	**SHUTTER:**	Global Shutter
FORMAT:	1/2.3"	**FRAME RATE:**	162 fps
PIXEL SIZE:	3.45 x 3.45 µm	**INTERFACE:**	USB3 Vision (PoUSB)
LENS MOUNT:	C-Mount	**RESOLUTION MP:**	2.3 MP
SPECTRUM:	Color (Visible)	**RESOLUTION WxH:**	1920 x 1200 px

Specifications	GOX-2402-USB
Sensor	1/2.3" CMOS global shutter (IMX392)
Active pixels	1920 (h) x 1200 (v)
Frame rate, full frame	162 frames/sec. @ 8-bit mono/Bayer
Active area	6.62 mm (h) x 4.14 mm (v) - 7.81 mm diagonal
Pixel size	3.45 µm x 3.45 µm
System clock	74.25 MHz (for pulse generator)
Read-out modes Full ROI (single)	1920 (h) x 1200 (v) up to 162 fps H: 96 to 1904 pixels in 16 pixel steps V: 8 to 1198 lines in 2 line steps
Binning	1x2, 2x1, 2x2
EMVA 1288 Parameters Absolute sensitivity Maximum SNR	10-bit output format Mono: 3.71 p Color: 4.86 p (λ = 527 nm) 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[†] Color: 8/10/12-bit Bayer[†]
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, 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 µs to 8 sec. in 1 µs steps Auto: 100 µs to 6.1 ms at full resolution
Auto Level Control (ALC)	Shutter range from 100 µs to 6.1 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)	–5ºC to +45ºC (20 to 80% non-condensing)
Storage temp. (ambient)	–25ºC to +60ºC (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-2402M-USB	Monochrome camera with USB3 Vision interface
GOX-2402C-USB	Color camera with USB3 Vision interface

Dimensions

Outside size tolerance ± 0.3 mm

Connector pin-out

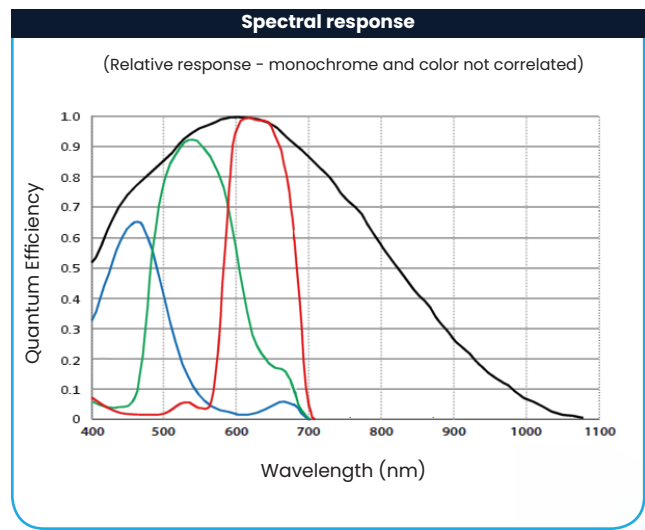**DC In / Trigger**

HIROSE HR10A-7R-6PB(73)

Pin
1 DC in +10V to +25V
2 Opto In+
3 Opto In-
4 Opto Out+
5 Opto Out+
6 Ground

USB 3.0 Interface

Micro B type - ZX3600-B-10P or equiv.

No.	I/O	Name	Note
1	I	VBUS IN	Power (VBUS)
2	I/O	DM	USB2.0 Differential pair (-)
3	I/O	DP	USB2.0 Differential pair (+)
4	–	OTG ID	USB OTG ID for identifying lines
5	–	GND	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 (+)

Spectral response

(Relative response - monochrome and color not correlated)

*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.

Product Highlights

- Go-X Series delivers exceptional combination of price and performance
- 2.3-megapixel, 1/2.3" CMOS imager (global shutter)
- Up to 162 fps at full resolution (1920 x 1200)
- 3.45 µm 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