GO-5100MP-USB
5.1 megapixel polarization camera

USB**3**™
VISION

- ■ *5.1-megapixel camera featuring Sony IMX250MZR CMOS polarized sensor*
- ■ *Four different polarizing filters (0°, 45°, 90°, 135°) applied to each 4-pixel block*
- ■ *Outputs raw 5.1 MP mosaic image or decimated images from each polarizing angle*
- ■ *Built-in functions to calculate polarization angle, ratio, and appearance with diffuse light removed*
- ■ *Additional functions display diffuse light only (without polarization) and average for each pixel*
- ■ *Advanced algorithms provide pseudo-color overlay data for easier analysis*
- ■ *8, 10, or 12-bit monochrome output**
- ■ *Compact size and smart design*
- ■ *Excellent shock and vibration resistance*
- ■ *USB3 Vision interface*
- ■ *C-mount lens mount*

* Some video processing functions not available with 12-bit output

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Specifications for GO-5100MP-USB

Specifications	GO-5100MP-USB
Sensor	2/3" CMOS global shutter (IMX250MZR)
Active pixels	2464 (h) x 2056 (v)
Frame rate, full frame	74 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 (single) Binning	2464 (h) x 2056 (v) up to 74 fps H: 16 to 2464 pixels in 16 pixel steps V: 2 to 2056 lines in 2 line steps 1x2, 2x1, 2x2
EMVA 1288 Parameters Absolute sensitivity Maximum SNR	12-bit output format TBD p (λ = 525 nm) SNR dB
Traditional SNR*	>60 dB (0 dB gain, 10-bit)
Video signal output	8/10/12-bit monochrome†
Video modes	Normal, Single ROI, Multi ROI, Sequencer, Delayed Readout
Gain	Manual/auto 0 dB to +24 dB
Gamma	0.45 to 1.0 (9 steps)
Shading correction	Flat shading
Blemish compensation	256 pixels
Trigger input	Opto In (1), Pulse Generator, Software, NAND Out (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 13.427 ms, gain range from 0 dB to +24 dB. Tracking speeds and max. values adjustable.
Pre-processing functions	Polarization angle, polarization ratio, polarized light only, diffused light only, average light, pseudo color over monochrome, pseudo color over gray image
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
Power 6-pin USB 3.0	+12V to +24V DC ± 10%. 4.2 W typical @ +12 V +5V DC. 4.35 W typical @ +5 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-5100MP-USB	Monochrome polarization camera with USB3 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.

**Performance may be affected if temperature of camera exceeds 65°C (internal) or 61°C (top surface). See specifications section of manual for details.

Dimensions

Outside size tolerance ± 0.3 mm
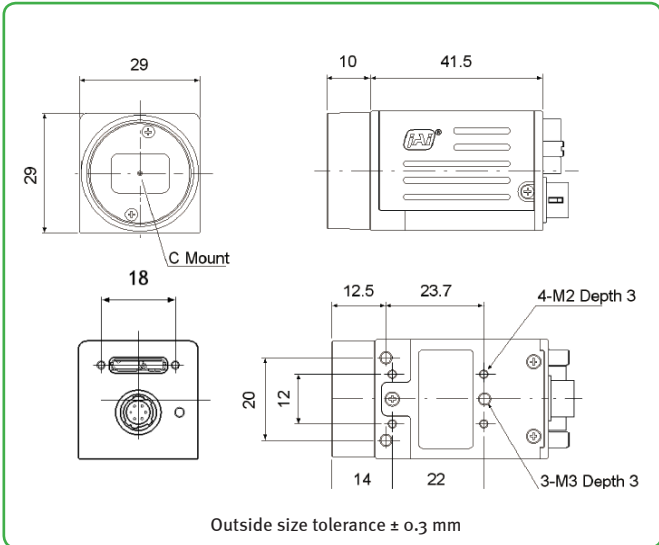
Connector pin-out

DC In / Trigger

HIROSE HR10A-7R-6PB(73)

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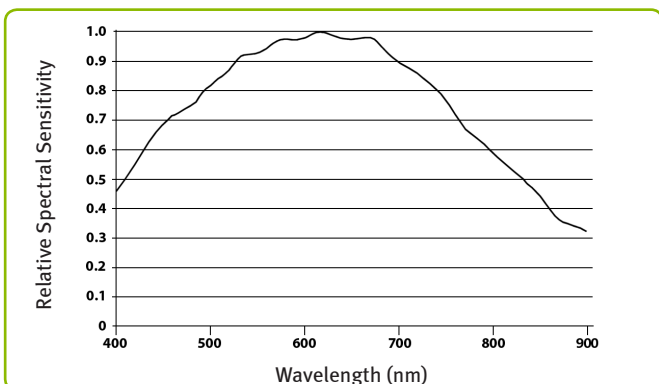
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