

❖ **GO-5100-USB**  
5.1 megapixel CMOS global shutter

**USB**<sup>TM</sup>  
VISION



- **5.1-megapixel 2/3" CMOS imager (global shutter)**
- **Up to 74 fps at full resolution**
- **3.45  $\mu$ m square pixels**
- **Small size (29 x 29 x 41.5 mm, excluding lens mount)**
- **8/10-bit output in a choice of monochrome or raw Bayer color**
- **Exposure control from 7  $\mu$ s to 8 seconds in 1  $\mu$ s 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**

# Specifications for GO-5100-USB

# Go Series

Specifications		GO-5100-USB
Sensor		2/3" CMOS global shutter (IMX250)
System clock		74.25 MHz (for pulse generator)
Frame rate, full frame		74 frames/sec. @ 8-bit
Active area		8.5 mm (h) x 7.09 mm (v), 11.1 mm diagonal
Cell size		3.45 μm (h) x 3.45 μm (v)
Active pixels		2464 (h) x 2056 (v)
Read-out modes	Full	2464 (h) x 2056 (v) up to 74 fps
	ROI (mono)	H: 16 to 2464 pixels in 16 pixel steps V: 1 to 2056 lines in 1 line steps
	ROI (color)	H: 16 to 2464 pixels in 16 pixel steps V: 2 to 2056 lines in 2 line steps
	Binning	1x2, 2x1, 2x2 (monochrome only)
EMVA 1288 Parameters		12-bit output format
Absolute sensitivity (mono)		3.65 p (λ = 525 nm)
Absolute sensitivity (color)		4.10 p (λ = 525 nm)
Maximum SNR (mono)		40.34 dB
Maximum SNR (color)		40.21 dB
Traditional SNR*	mono	>60 dB (0 dB gain)
	color	>60 dB (0 dB gain, green)
Video signal output		8/10/12-bit monochrome† 8/10/12-bit raw Bayer†
Gain control		Manual/auto 0 dB to +24 dB
White balance (GO-5100C)		Manual, one-push auto, or continuous (3000K to 9000K)
Gamma		0.45, 0.6, 1.0 or 256-point LUT
Synchronization		Internal
Video modes		Normal, Single ROI, Multi ROI, Sequencer (Trigger & Command), Delayed Readout
Trigger input		Opto In, Pulse Generator, Software, NAND Out (2), Action Commands (2)
Trigger modes		Timed/EPS, Trigger Width, Sequencer
Electronic shutter	Timed exposure	7 μs to 8 sec., in 1 μs steps (8-bit)
	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-5100C-USB), blemish compensation (512 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 (EN 61000-6-2, EN 61000-6-3), FCC Part 15 Class B, RoHS/WEEE
Power	6-pin connector	12V to 24V DC ± 10%. 4.2 W typical @ +12V
	USB 3.0	Bus power: 4.35 W typical @ +5V
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

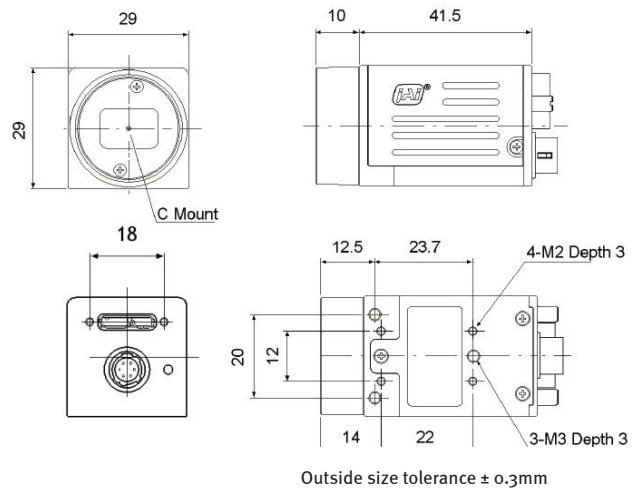
## Ordering Information

GO-5100M-USB	Monochrome camera with USB3 Vision
GO-5100C-USB	Color 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. For a more complete description, see the manual.

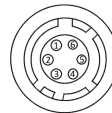
†12-bit output available in video processing bypass mode. See manual for details.

## Dimensions



## Connector pin-out

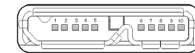
### DC In / Trigger



HIROSE HR10A-7R-6PB(73)

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

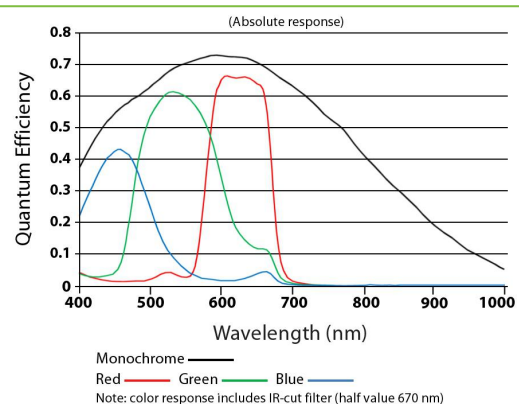
### USB 3.0 Interface



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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