

GO-5000-USB

5-megapixel CMOS global shutter

USBTM
VISION



- *Large format 5 MP CMOS imager (global shutter)*
- *Up to 62 fps at full resolution*
- *5.0 μm square pixels in a 5:4 aspect ratio*
- *Small size (29 x 29 x 41.5 mm, excluding lens mount)*
- *8/10/12-bit output in choice of monochrome or raw Bayer color models*
- *60 dB linear dynamic range with built-in HDR modes up to 84 dB (monochrome only)*
- *Analog and digital gain control for less quantized noise in low-light situations*
- *Exposure control from 10 μs to 8 seconds in 1 μs steps*
- *2X and 4X binning for increased sensitivity (monochrome only)*
- *Single and Multi-ROI modes for flexible windowing and use of 2/3" or smaller optics*
- *Accepts power over USB3 Vision interface or separate 6-pin connector*
- *C-mount lens mount*
- *Automatic Level Control (ALC) for dynamic lighting conditions*



Specifications for GO-5000-USB

Go Series

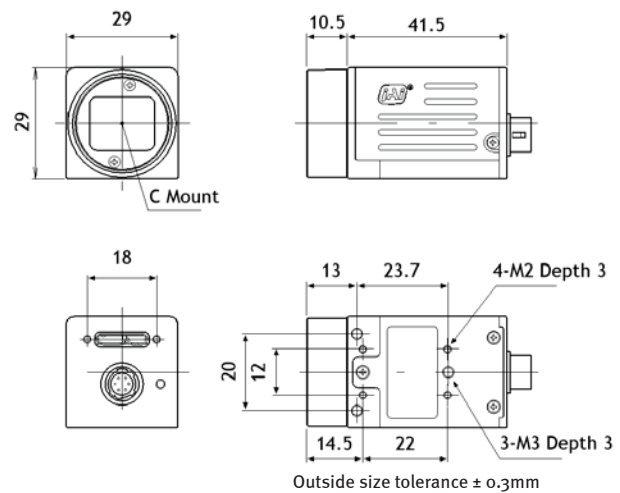
Specifications	GO-5000-USB
Sensor	1" CMOS global shutter (Lince5M)
System clock	48 MHz (for pulse generator)
Frame rate, full frame	62 frames/sec. @ 8-bit
Active area	12.8 mm (h) x 10.2 mm (v), 16.39 mm diagonal
Cell size	5.0 μm (h) x 5.0 μm (v)
Active pixels	2560 (h) x 2048 (v)
Read-out modes	Full 2560 (h) x 2048 (v) up to 62 fps ROI (mono) Any start line, any height in 1-line steps, with X offset and width in 16-pixel steps ROI (color) Any start line, any height in 2-line steps, with X offset and width in 16-pixel steps Binning 1X2, 2X1, 1X4, 4X1, 2X2, 2X4, 4X2, 4X4 (mono only)
EMVA 1288 Parameters	10-bit output format
Absolute sensitivity (mono)	20.17 p (λ = 525 nm)
Absolute sensitivity (color)	51.25 p (λ = 525 nm)
Maximum SNR (mono)	41.30 dB
Maximum SNR (color)	38.12 dB
Traditional SNR*	mono >55 dB (0 dB gain) color >53 dB (0 dB gain, green)
Video signal output	mono 8/10/12-bit monochrome color (raw) 8/10/12-bit raw Bayer
Gain (digital)	Manual/automatic 0 dB to +24 dB
Gain (analog)	1x, 2x, 4x (mono or individual Bayer channels)
White balance (GO-5000C)	Manual, one-push auto, or continuous (3000K to 9000K)
Gamma	0.45, 0.6, 1.0 or 32-point LUT (16-pt. color)
Synchronization	Internal
Trigger input	Opto In, Pulse Generators, Software, User Output (NAND gates)
Trigger modes	EPS, Trigger Width, Timed RCT (with ALC), Sequence
Electronic shutter	Timed exposure 10 μs to 8 sec in 1 μs steps Auto shutter 1/62 to 1/100,000 sec.
Auto Level Control (ALC)	Shutter range from 1/62 to 1/100,000, gain range from 0 dB to +24 dB. Tracking speeds and max values adjustable.
High Dynamic Range function	4 built-in HDR slopes. Selectable up to ~84 dB (monochrome only).
Pre-processing functions	Flat field correction, color shading correction (GO-5000C), 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 (20Hz to 200Hz 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 ± 10%. 2.8W typical @ 12V USB 3.0 720mA, 3.6W 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-5000M-USB	Monochrome camera with USB3 Vision
GO-5000C-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.

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

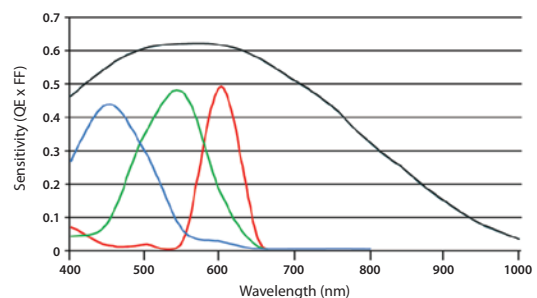
USB 3.0 Interface



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



Note: Color response includes IR-cut filter.

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