SP-5000-GE2
5-megapixel CMOS global shutter

GiGE® VISION

- *Large format 5 MP CMOS imager (global shutter)*
- *Up to 44 fps at full resolution*
- *5.0 µm square pixels in a 5:4 aspect ratio*
- *Monochrome or color models with built-in color interpolation on color model*
- *60 dB linear dynamic range with up to 84 dB piecewise HDR modes (monochrome only)*
- *Analog front-end gain control for reduced noise in low light images*
- *On-chip analog gain for individual R, G, + B control (color models)*
- *Exposure control from 10 µs (1/100,000) to 8 seconds in 1 µs steps*
- *ROI modes for flexible readout, windowing, or increasing frame rate*
- *Vertical and horizontal binning on monochrome model*
- *8/10-bit digital output over dual GigE Vision 2.0 interface with Link Aggregation*
- *C-mount lens mount*
- *Automatic Level Control (ALC) for dynamic lighting conditions*
- *Programmable P-iris lens control or 3-axis control for operation of motorized lenses, pan/tilt heads, or other analog accessories*

JAi®

See the possibilities

Specifications for SP-5000-GE2

Specifications		SP-5000-GE2
Sensor		1" CMOS global shutter
System clock		72 MHz (for pulse generator)
Frame rate, full frame		44 frames/sec. @ 8-bit LAG
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 44 fps
	ROI (mono)	8 lines to full frame height and width in 2-line steps, with X offset in 16-pixel steps
	ROI (color)	8 lines to full-frame height in 2-line steps, with width in 2-pixel steps and X offset in 4-pixel steps
	Binning	1x2, 2x1, 2x2 (monochrome only)
EMVA 1288 Parameters		10-bit output format
Absolute sensitivity (mono)		23.50 p (λ = 525 nm)
Absolute sensitivity (color)		36.08 p (λ = 525 nm)
Maximum SNR (mono)		41.48 dB
Maximum SNR (color)		38.00 dB
Traditional SNR*	mono	›55 dB (o dB gain)
	color	›53 dB (o dB gain, green)
Video signal output	mono	8/10/12-bit monochrome
	color (raw)	8/10/12-bit raw Bayer
	color (interpolated)	24-bit RGB, YUV 411, YUV 422, YUV 444
Auto-iris lens video output		0.7Vp-p, with 0.3V horiz. sync
Gain		Manual/automatic 0 dB to +24 dB
White balance (EL-2800C)		Manual, one-push auto, or continuous (3000K to 9000K)
Gamma		0.45-1.0 (16 steps) or 256-point LUT
Synchronization		Internal
Trigger input		Opto In (2), Pulse Generators (4), Software, User Output (4), Actions (2)
Trigger modes		EPS, PIV, Trigger Width, Timed RCT (with ALC), Sequence
Electronic shutter		
Timed exposure		10 μs to 8 sec in 1 μs steps
Auto shutter		1/44 to 1/100000 sec.
Auto Level Control (ALC)		Shutter range from 1/44 to 1/100000, gain range from 0 dB to +24 dB, auto iris control. Tracking speeds and max values adjustable.
High Dynamic Range function		4 built-in HDR slopes. Selectable up to ~84 dB.
Pre-processing functions		Flat field correction, color shading correction (SP-5000C), blemish compensation (512 pixels)
3-axis control		Programmable control of motorized lenses, pan/tilt heads, and other analog accessories
Operating temperature		−45°C to +70°C†
Storage temperature		−45°C to +70°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		12V to 24V DC ± 10%. 6.25W typical (full frame @ 12V)
Lens mount		C-mount (fixed or adjustable)
Dimensions (H x W x L)		62 mm x 62 mm x 55.5 mm
Weight		215 g

Ordering Information

SP-5000M-GE2	Monochrome camera with GigE Vision
SP-5000C-GE2	Color camera with GigE Vision

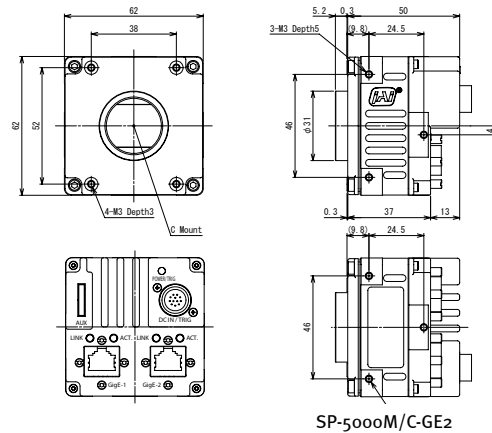Note: add -CX to model number for adjustable C-mount

*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.

†Reduced performance may occur when operating outside the standard range of −10°C to +50°C
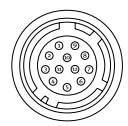
Dimensions

SP-5000M/C-GE2

Color Interpolation (in-camera)

YUV 411	Dual-channel (LAG) 29 fps or single-channel @ 14 fps
YUV 422	Dual-channel (LAG) 22 fps or single-channel @ 11 fps
YUV 444	Dual-channel (LAG) 14.6 fps or single-channel @ 7.3 fps
RGB 24-bit	Dual-channel (LAG) 14.6 fps or single-channel @ 7.3 fps

Connector pin-out

DC In / Trigger

HIROSE HR10A-10R-12PB-01
Connector pin-out

Pin	Signal
1	GND
2	+12V to +24V DC input
3	Opto In 2-
4	Opto In 2+
5	Opto In 1-
6	Opto In 1+
7	Opto Out 1-
8	Opto Out 1+
9	Opto Out 2-
10	Opto Out 2+
11	+12V to +24V DC input
12	GND

GigE Vision Interface

RJ-45 (2) with locking screws

Pin	Signal
1	TRD+ (0)
2	TRD- (0)
3	TRD+ (1)
4	TRD+ (2)
5	TRD- (2)
6	TRD- (1)
7	TRD+ (3)
8	TRD- (3)

Spectral Response

Monochrome — Red — Green — Blue —
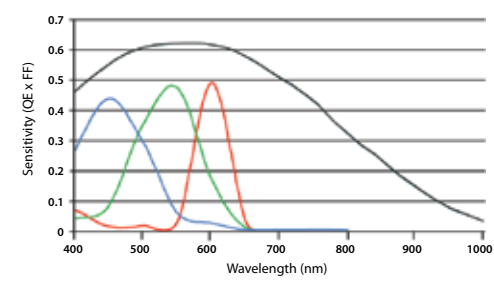
Note: Color response includes IR-cut filter.

See the possibilities