

➤ **SP-5000-CXP4**  
5-megapixel CMOS global shutter

**CoaXPress®**



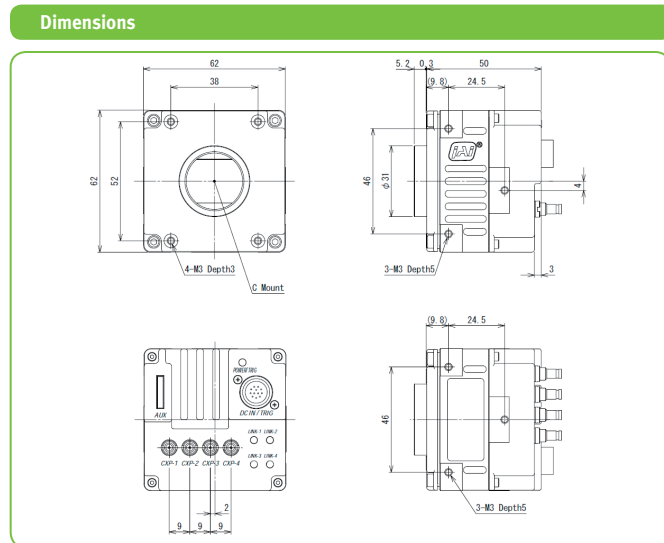
- **Large format 5 MP CMOS imager (global shutter)**
- **Up to 253 fps at full resolution**
- **5.0  $\mu\text{m}$  square pixels in a 5:4 aspect ratio**
- **60 dB linear dynamic range with up to 84 dB piece-wise HDR modes**
- **Analog and digital gain control for less quantized noise in low-light situations**
- **Exposure control from 10  $\mu\text{s}$  (1/100,000) to 8 seconds in 1  $\mu\text{s}$  steps**
- **2X binning for increased sensitivity (monochrome only)**
- **ROI modes for flexible readout, windowing, or increasing frame rate**
- **Monochrome or color models with built-in color interpolation on color model**
- **8/10/12-bit digital output over four-channel CoaXPress interface**
- **Accepts power via CoaXPress or separate 12-pin connector**
- **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**



# Specifications for SP-5000-CXP4

# Spark Series

Specifications	SP-5000-CXP4
Sensor	1" CMOS global shutter
System clock	72 MHz (for pulse generator)
Frame rate, full frame	253 frames/sec. @ 8/10/12-bit, CXP-6x4
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 ROI 2560 (h) x 2048 (v) up to 250 fps Any start line, any height in 2 line steps, with X offset and width in 64 pixel steps
Binning	1x2, 2x1, 2x2 (monochrome only)
Color interpolation (SP-5000C)	24-bit RGB output at up to 53 fps
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 (0 dB gain) color >53 dB (0 dB gain, green)
Video signal output	mono 8/10/12-bit monochrome color 8/10/12-bit Bayer or 24-bit RGB
Auto-iris lens video output	0.7Vp-p, with 0.3V horiz. sync
Gain	Manual/automatic 0 dB to +24 dB
White balance (SP-5000C)	Manual, one-push auto, or continuous (3000K to 9000K)
Gamma	0.45-1.0 (16 steps) or 256-point LUT
Synchronization	Internal
Trigger input	TTL, CXP, Pulse Generators (4), Software, NAND Out (2), GPIO
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 1/250 to 1/100000 sec.
Auto Level Control (ALC)	Shutter range from 1/250 to 1/100000, gain range from 0 dB to +24 dB, auto iris control Tracking speeds and max values adjustable.
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%. 7.8W 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



## Connector pin-out

**DC In / Trigger**

HIROSE HR10A-10R-12PB-01

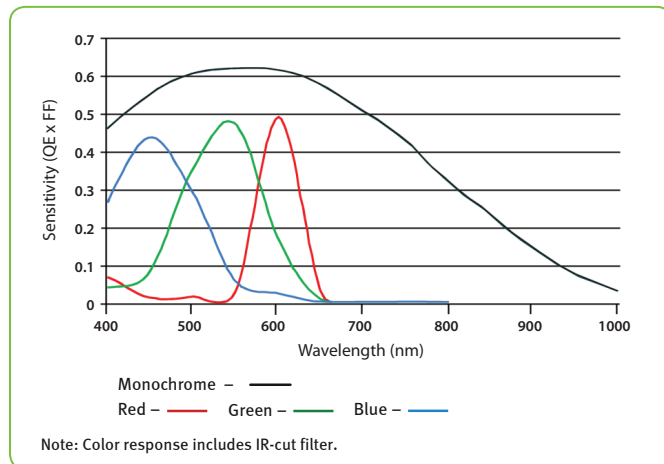
Connector Pin-out

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

**CoaXPress Interface**

One-, two-, or four-channel output  
Requires cable(s) with 75Ω  
1.0/2.3 DIN-type connector  
Supports up to 6.25 Gbps per channel  
Power can be supplied on channel #1

## Spectral Response



## Ordering Information

SP-5000M-CXP4	Monochrome camera with four-channel CoaXPress
SP-5000C-CXP4	Color camera with four-channel CoaXPress

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 -5°C to +45°C

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