

❖ **SP-12000-CXP4**  
12-megapixel CMOS global shutter

**CoaXPress®**



- **Large format 12 MP CMOS imager (global shutter)**
- **APS-C optical format with 28.16 mm diagonal**
- **Up to 189 fps at full resolution**
- **5.5  $\mu\text{m}$  square pixels in a 4:3 aspect ratio**
- **Exposure control from 50  $\mu\text{s}$  (1/20,000) to 8 seconds in 1  $\mu\text{s}$  steps**
- **Single- and multi-ROI modes for flexible readout, windowing, or increasing frame rate**
- **Flat-field and blemish compensation plus in-camera CMOS pattern correction**
- **Built-in high dynamic range function provides up to 90 dB dynamic range (monochrome only)**
- **2X binning for increased sensitivity (monochrome only)**
- **Automatic Level Control (ALC) for dynamic lighting conditions**
- **8/10-bit digital output over four-channel CoaXPress interface**
- **Monochrome or Bayer color models available**
- **12-pin connector for power and GPIO, plus additional I/O via 10-pin auxiliary connector**
- **F-mount lens mount**

# Specifications for SP-12000-CXP4

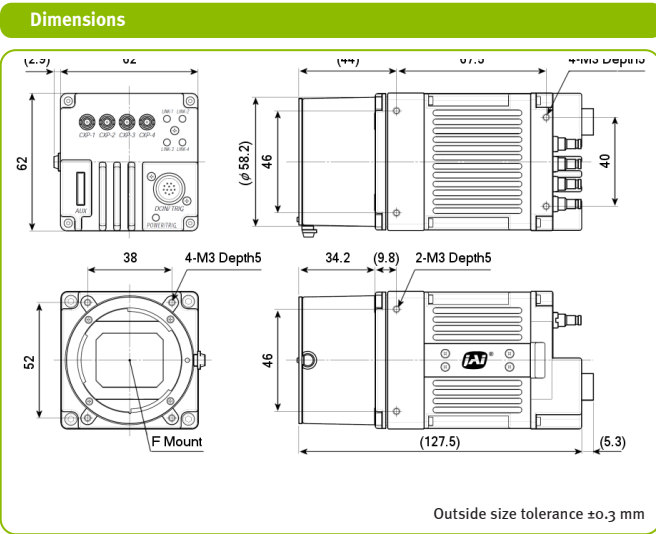
# Spark Series

Specifications		SP-12000-CXP4
Sensor	APS-C size CMOS global shutter (CMV12000)	
Frame rate, full frame	189 frames/sec. @ 8-bit, CXP6_X4	
Active area	22.5 mm (h) x 16.9 mm (v), 28.16 mm diagonal	
Cell size	5.5 μm (h) x 5.5 μm (v)	
Active pixels	4096 (h) x 3072 (v)	
Read-out modes	Full ROI	4096 (h) x 3072 (v) up to 189 fps 128-4096 in 16-pixel steps 16-3072 in 2-line steps
	Binning	1x2, 2x1, 2x2 (monochrome only)
EMVA 1288 Parameters	10-bit output format, 90 fps	
	Absolute sensitivity (mono)	35.76 p (λ = 525 nm)
	Absolute sensitivity (color)	46.58 p (λ = 525 nm)
	Maximum SNR (mono)	39.60 dB
	Maximum SNR (color)	37.77 dB
Traditional SNR*	mono	>53 dB (0 dB gain)
	color	>50 dB (0 dB gain, green)
Video signal output	mono	8/10-bit monochrome
	color	8/10-bit Bayer (12-bit available in video process bypass mode)
Interface	CoaXPress v1.1 (CXP-6, DIN 1.0/2.3 connectors) Link Configs: CXP6_X4, CXP6_X2, CXP6_X1 CXP3_X4, CXP3_X2, CXP3_X1	
Gain	Manual/automatic 0 dB to +24 dB	
White balance (SP-12000C)	Manual, one-push auto, or continuous (3000K to 9000K)	
Gamma	0.45-1.0 (9 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, Sequence	
Electronic shutter		
	Timed exposure	15 μs to 8 sec in 1 μs steps
	Trigger width	15 μs to ∞ sec.
Auto Level Control (ALC)	Shutter range from 100 μs to ~5.3 ms, gain range from 0 dB to +24 dB Tracking speeds and max values adjustable.	
Pre-processing functions	Flat field correction, color shading correction (SP-12000C), blemish compensation (1000 pixels), black level control, DSNU correction	
Operating temperature	-5°C to +30°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	12-pin PoCXP	12V to 24V DC ± 10%. 12W typical @ +12V 24V DC ± 2V. 12W typical @ +24V
Lens mount	F-mount (46.5 mm flangeback)	
Dimensions (H x W x L)	62 mm x 62 mm x 127.5 mm	
Weight	510 g	

## Ordering Information

SP-12000M-CXP4	Monochrome camera with four-channel CoaXPress
SP-12000C-CXP4	Color camera with four-channel CoaXPress

\*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.



## Connector pin-out

### DC In / Trigger

HIROSE HR10A-10R-12PB-01

Connector Pin-out

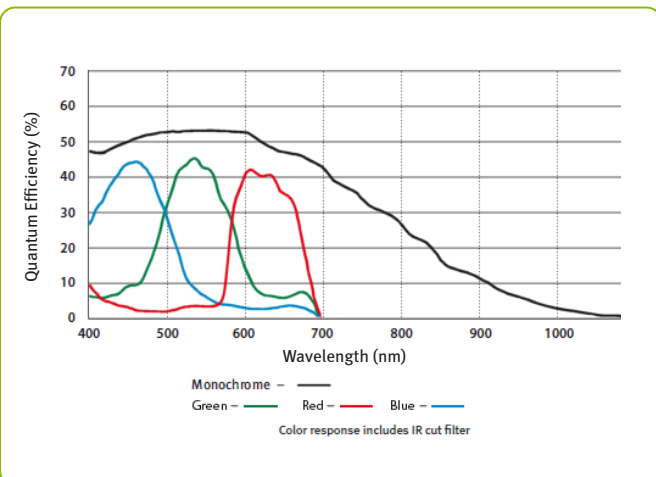
Pin	Signal
1	GND
2	+12V to +24V DC input
3	GND
4	NC
5	Opto In-
6	Opto In+
7	Opto Out-
8	Opto Out+
9	TTL out 1
10	TTL in 1
11	+12V to +24V DC input
12	GND

### Auxiliary Connector

Type: 3260-10S3(5) HIROSE or equivalent

Pin	Signal	Note
1	TTL Out 2	Line 8
2	TTL Out 3	Line 9
3	TTL In 2	Line 10
4	NC	
5	GND	GND
6	LVDS In +	
7	LVDS In -	Line 11
8	NC	
9	GND	
10	GND	

## Spectral Response



Europe, Middle East & Africa  
Phone +45 4457 8888  
Fax +45 4491 3252

Asia Pacific  
Phone +81 45 440 0154  
Fax +81 45 440 0166

Americas  
Phone (Toll-Free) 1 800 445 5444  
Phone +1 408 383 0300



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