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 µm square pixels in a 4:3 aspect ratio*
- *Exposure control from 15 µs to 8 seconds in 1 µs 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*

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See the possibilities

Specifications for SP-12000-CXP4

Specifications

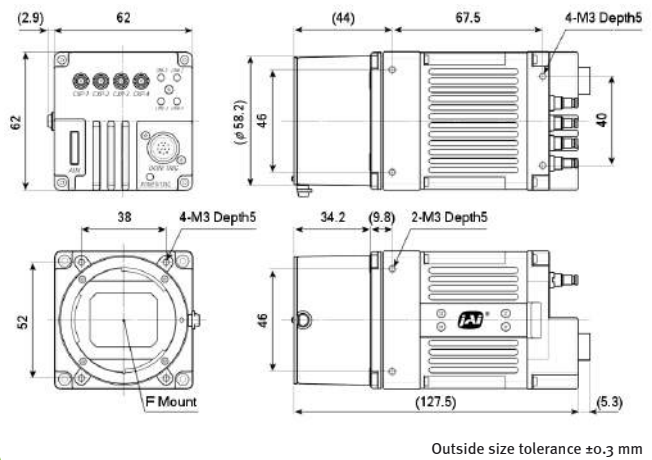| Specifications	SP-12000-CXP4
Sensor	APS-C size CMOS global shutter (CMV12000)
Frame rate, full frame	189 frames/sec. @ 8-bit, CXP-6x4
Active area	22.5 mm (h) x 16.9 mm (v), 28.16 mm diagonal
Cell size	5.5 μm (h) x 5.5 μm (v)
Active pixels	4096 (h) x 3072 (v)
Read-out modes Full	4096 (h) x 3072 (v) up to 189 fps
ROI	128-4096 wide with width and offset in 16-pixel steps 16-3072 high with height and offset in 2-line steps
Binning	1x2, 2x1, 2x2 (monochrome only)

EMVA 1288 Parameters
  Absolute sensitivity (mono)
  Absolute sensitivity (color)
  Maximum SNR (mono)
  Maximum SNR (color)
	10-bit output format, 90 fps
	35.76 p (λ = 525 nm)
	46.58 p (λ = 525 nm)
	39.60 dB
	37.77 dB

Traditional SNR* mono color	›53 dB (0 dB gain) ›50 dB (0 dB gain, green)
Video signal output mono color	8/10-bit monochrome 8/10-bit Bayer (12-bit output available in IP Bypass mode)
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/exposure modes	EPS, PIV, Trigger Width, Sequence

Electronic shutter
  Timed exposure
  Auto shutter
	
	15 μs to 8 sec in 1 μs steps
	1/189 to 1/10000 sec.

Auto Level Control (ALC)	Shutter range from 1/189 to 1/10000, 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 or PoCXP)	12V to 24V DC ± 10%. 11.4W typical (12-pin, full frame, 4-lane @ 12V)
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
SP-12000M-CXP4-XT	Monochrome camera with extended temperature†
SP-12000C-CXP4-XT	Color camera with extended temperature†

*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.

†Extended temperature models can operate from -5°C to +45°C. Contact JAI for details.
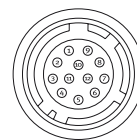
Note: System clock frequency is 60 MHz - used for Pulse Generator function.

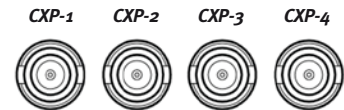## Dimensions

Outside size tolerance ±0.3 mm

Connector pin-out

DC In / Trigger

HIROSE HR10A-10R-12PB-01

Connector Pin-out
Pin
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

CoaXPress Interface

CXP-1   CXP-2   CXP-3   CXP-4
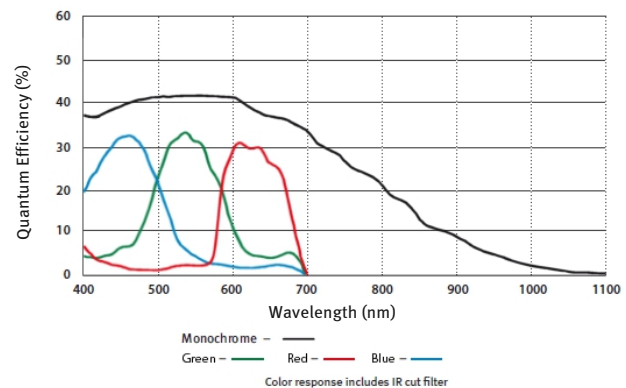
One-, two-, or four-channel output
Requires cable(s) with 75Ω
1.0/2.3 DIN-type connector
Supports up to 6.25 Gbps per channel

Auxiliary Connector
HIROSE 10-Pin Connector 3260-10S3(55)
Provides LVDS in plus TTL I/O
See user manual for details

Spectral Response

Color response includes IR cut filter

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