

➤ **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 μm 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 μs (1/100,000) to 8 seconds in 1 μs 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 |

Ordering Information

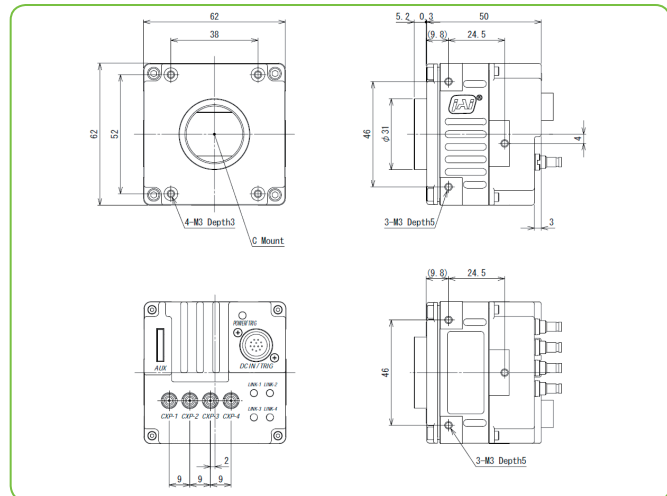
| | |
|---------------|---|
| SP-5000M-CXP4 | Monochrome camera with four-channel CoaXPress |
| SP-5000C-CXP4 | Color camera with four-channel CoaXPress |

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.

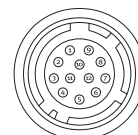
†Reduced performance may occur when operating outside the standard range of -5°C to +45°C

Dimensions



Connector pin-out

DC In / Trigger

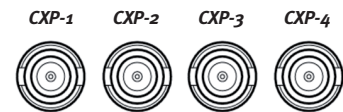


HIROSE HR10A-10R-12PB-01

Connector Pin-out

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

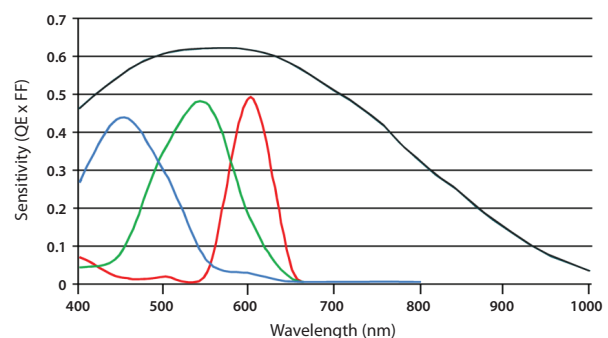
CoaXPress Interface



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



Note: Color response includes IR-cut filter.

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