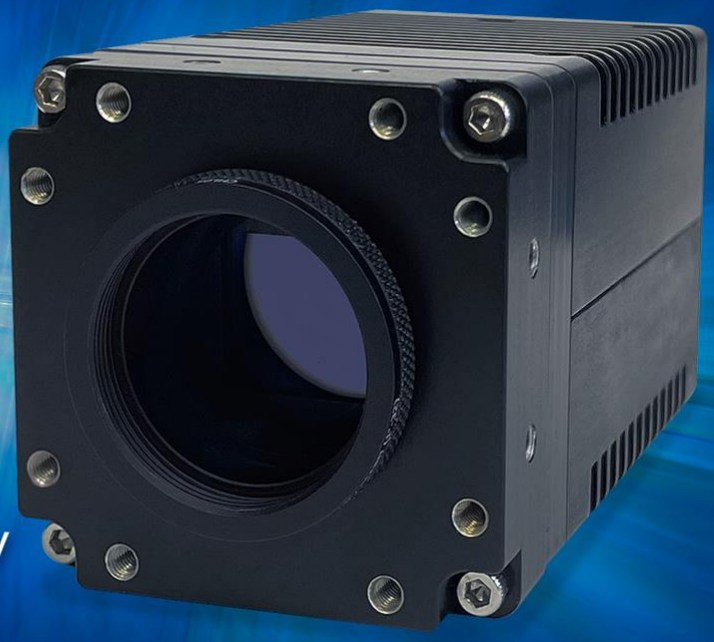
KAYA INSTRUMENTS



Iron CXP over Fiber 2020BSI-UV

Iron CoaXPress
Small Form Factor, Ruggedized Camera

Innovative Approach

The ***Iron 2020BSI*** is a high-speed, low-cost, low-power global shutter CMOS camera with a CoaXPress over Fiber Bridge 1.0 interface (via a SFP+ module) which supports 4 MP high quality video at rates of up to 74fps.

Intelligent Design

The GSENSE2020BSI is a rolling shutter sensor with a 6.5µm pixel size. With a compact outline the camera can be fitted into tight spaces. Superior sensor performance and non-standard UV sensitivity allow excellent low-light vision capabilities

Applications:

- Perimeter vision
- Low light surveillance
- Special Effects
- Virtual Reality

Key Features:

- 4 Megapixel up to 74 fps
- Up to 4.5W power at full rate
- UV light sensitivity
- Full image processing feature set
- CoaXPress over Fiber Bridge 1.0
- C or CS lens mounts available
- Full EMVA1288 report
- Full built-in self-test (BIT)
- Full built-in voltage testing
- Customization as per user requirements

Technical Data

Feature	Description
Pixel Size	6.5 µm x 6.5 µm
Resolution	2048 (H) x 2048 (V)
Sensor Size	13.3 mm x 13.3 mm | 1.2”
Sensor	Gpixel GSENSE2020BSI
Output Interface	CoaXPress over Fiber Bridge 1.0
Interface connector	Fiber optic SFP+ module
Supported SFP+ Modules	▪ Single-mode 1310nm ▪ Multi-mode 850nm ▪ Bidirectional single-mode (single fiber) ▪ CWDM
Output Resolution	12 bit, 11 bit
Max Frame Rate	74 fps @ 11 bit 43 fps @ 12 bit
Image acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic shutter	Rolling shutter with global reset
Monochrome/ color	Monochrome
Temporal noise	1.6 e- or 1.2 e- with reduced dynamic range
Full well charge	55 ke-
Dynamic range	90.5dB
Signal-to-Noise Ratio (SNR max)	46 dB
Quantum efficiency (QE) X FF	<85% @550 nm
Shortest Exposure	4.62 µs
On camera processing	▪ Defect pixel correction ▪ ROI ▪ Frame counter ▪ Flat field / Fixed patter noise correction ▪ Auto/Manual black level ▪ Auto Exposure/Gain ▪ Auto/Manual White balance ▪ Image flip ▪ LUT ▪ Gain (Analog / Digital) ▪ Binning ▪ Operational Time Counter
GPIO connection	Two inputs, two outputs, external trigger & strobe controller

Mechanical & Electrical

Feature	Description
Dimensions [1]	46 mm x 48 mm x 90.4 mm (Height x Width x Depth)
Weight (without lens)	<100g
Typical current	<190mA @ 24V
Operating Temperature	-40°C to 80°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 20-85% humidity (non-condensing)
Operational Shock	Tested per MIL-STD-810G Method 516.6, 3-axis Shock 75G
Operational Vibration	Tested per MIL-STD-810G Method 514.6, 3-axis Vibration Category 20
Ingress Protection	Optional IP67 (with protective lens tube)
Lens Mount	C-mount / CS-mount
Power Input	PoCXP full support (11-28V with external power option)
Power Consumption	<4.5W @ 24V DC

1. Dimensions are subject to change

* KAYA Instruments reserves the right to update the data sheet from time to time without prior notice.

Ordering Information

KAYA's Part Numbers are intuitive and derived directly from the product's properties. Each index represents a different property of the camera, according to the following diagram:

Lens mount:
C – C-mount
CS – CS-mount

Iron2020BSI – UV – CoF – M – NF – Y – G – NPT – CG

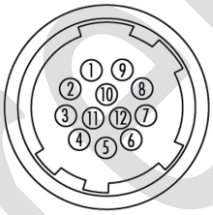
For example: an Iron 2020BSI-UV with a UV-IR cut filter and C-mount would go by Iron2020BSI-CoF-M-IRF-C-G-NPT-CG. It is also possible to buy peripheral equipment in addition to the camera as listed in the following table:

Product Name	Product Part Number
Cable, 12P Hirose connector (f)	KY-CBL-006

Please contact a sales representative over at info@kayainstruments.com for a full list of peripherals including cables and frame grabbers.

General Purpose Input Output

GPIO Pinout – 12 Pin Hirose Connector



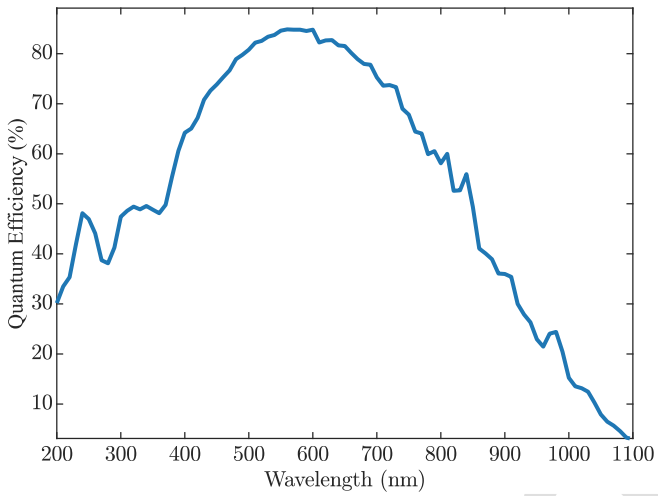
1. DC Power return
2. DC Power
3. RS232 RX
4. RS232 TX
5. OUT2 Return (OPTO)
6. RS232 Return
7. OUT1 (TTL)
8. IN1 (TTL)
9. IN2 (LVTTL)
10. IN1/OUT1 Return
11. IN2 Return (LVTTL)
12. OUT2 (OPTO)

The GPIO connector used on the camera is a 12 pin male Hirose connector. It is recommended to use a cable with a matching Hirose 12 pin female connector. Hirose's manufacturer's part number is listed below:

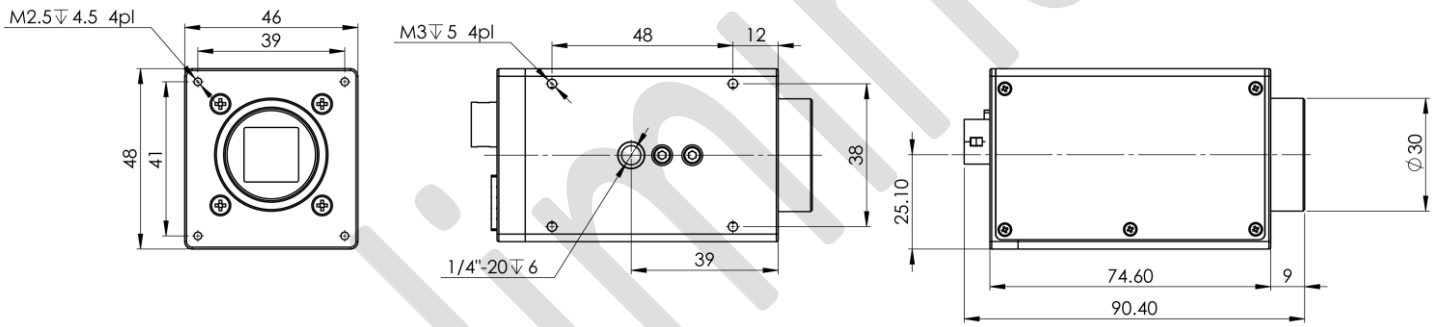
Product Name	Product Part Number
Hirose 12P connector, male	HR10A-10R-12PB
Hirose 12P connector, female	HR10A-10P-12S

Absolute Quantum Efficiency

GSENSE2020BSI-UV Spectral Response



Mechanical Drawings*



* Mechanical Dimensions are subject to change

Compatibility

KAYA Instruments creates and maintains compatibility and interfaces for the most common and advanced vision image processing libraries and applications.

Major support is available for **MVTec Halcon, National Instruments' LabVIEW** and **MathWorks' MATLAB**.

- Supported vision standards:

CoaXPress®

- Supported vision libraries:

HALCON a product of MVTec, OpenCV, NATIONAL INSTRUMENTS LabVIEW™, COGNEX

Please check our website for an up-to-date list of other supported libraries and software package

Contact Us

Please feel free to contact our team with any question or further inquiry at **info@kayainstruments.com** – we will be happy to provide assistance and consultation.

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