

Iron CoaXPress 2509

Iron CoaXPress Small Form Factor, Ruggedized Camera

Innovative Approach

The **Iron 2509** is a high speed, low-cost, low-power global shutter CMOS camera with up to 50 Gbps CoaXPress 2.0 interface (Micro-BNC connector) which supports 9 MP high quality video at rates of up to 290fps.

Intelligent Design

Our camera incorporates Gpixel's GMAX2509 sensor – manufactured in Israel by the company's Belgian branch. The GMAX2509 is a global shutter sensor with a 2.5 μ m pixel size. With a compact outline the camera can be fitted into tight spaces. Superior sensor performance allows very low light vision capabilities.

Applications:

- Perimeter vision
- Military/Defense systems
- Low light surveillance
- Special Effects
- Virtual Reality
- 3D

Key Features:

- 9 Megapixel up to 290 fps
- Monochrome and Color models
- Up to 5W power at full rate
- Full image processing feature set
- Up to 50 Gbps CoaXPress interface
- C, CS, F or EF 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	2.5 μm x 2.5 μm
Resolution	4200 (H) x 2160 (V)
Sensor Size	10.5 mm x 5.4 mm 2/3"
Sensor	Gpixel GMAX2509
Output Interface	x 4 channels CoaXPress 2.0 up to 50 (12.5 x 4) Gbps (CXP3, CXP6, CXP12)
Interface Connector	x 4 Micro-BNC
Output Resolution	10 bit, 12 bit
Max Frame Rate	290 fps @ 10 bit 121 fps @ 12 bit
Image acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic shutter	Global shutter
Monochrome/ color	Monochrome / Color
Temporal noise	<1.8 e ⁻
Full well charge	6.7 ke ⁻
Dynamic range	> 62dB @ 10 bit > 65dB @ 12 bit
Signal-to-Noise Ratio (SNR max)	38.2dB
Quantum efficiency (QE) X FF	<65.5% @500nm
Shortest Exposure	2.5 μs
On camera processing	<ul style="list-style-type: none"> ▪ 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

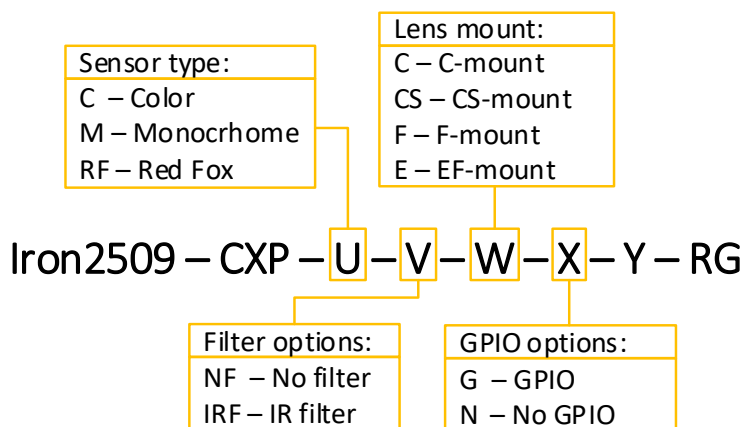
Feature	Description
Dimensions ^[1]	44 mm x 44 mm x 39 mm (Height x Width x Depth)
Weight (without lens)	<100g
Typical current	210mA @ 24V
Operating Temperature	-40°C to 80°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 20-85% humidity (non-condensing)
Operational Shock	Tested 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, F-mount or EF-mount
Power Input	PoCXP full support (11-28V with external power option)
Power Consumption	<5W @ 24V DC

1. Mechanical dimensions are subject to change

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

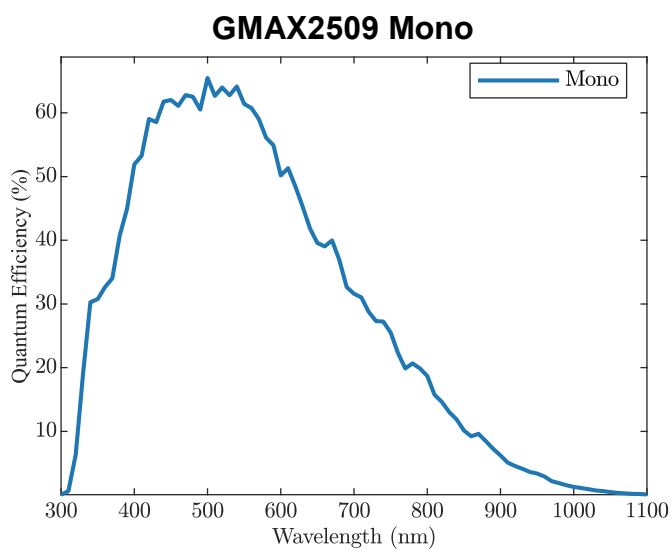
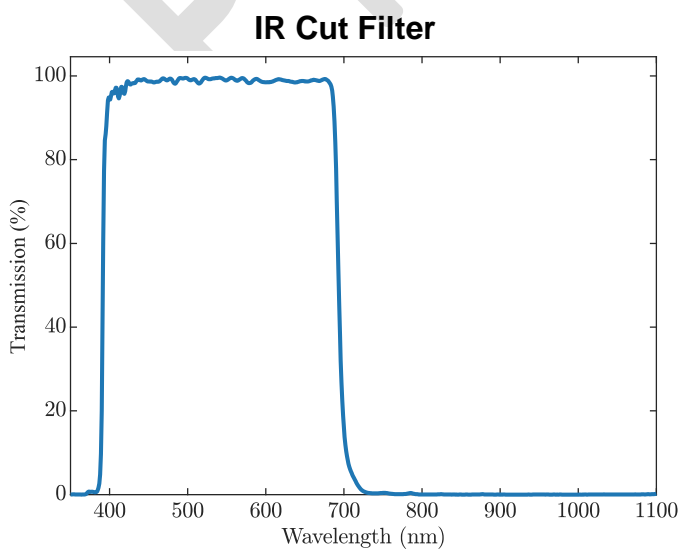
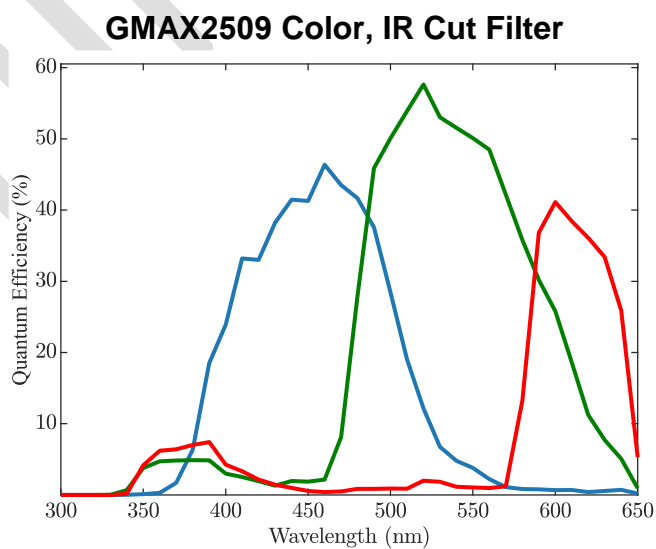
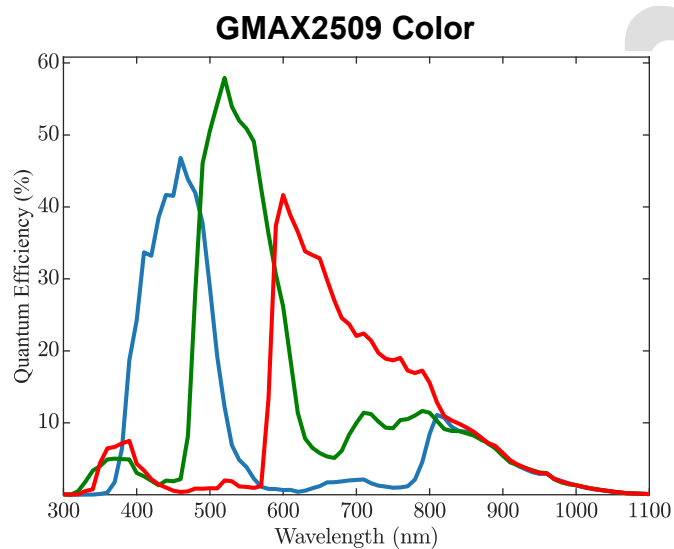
Ordering Information

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:

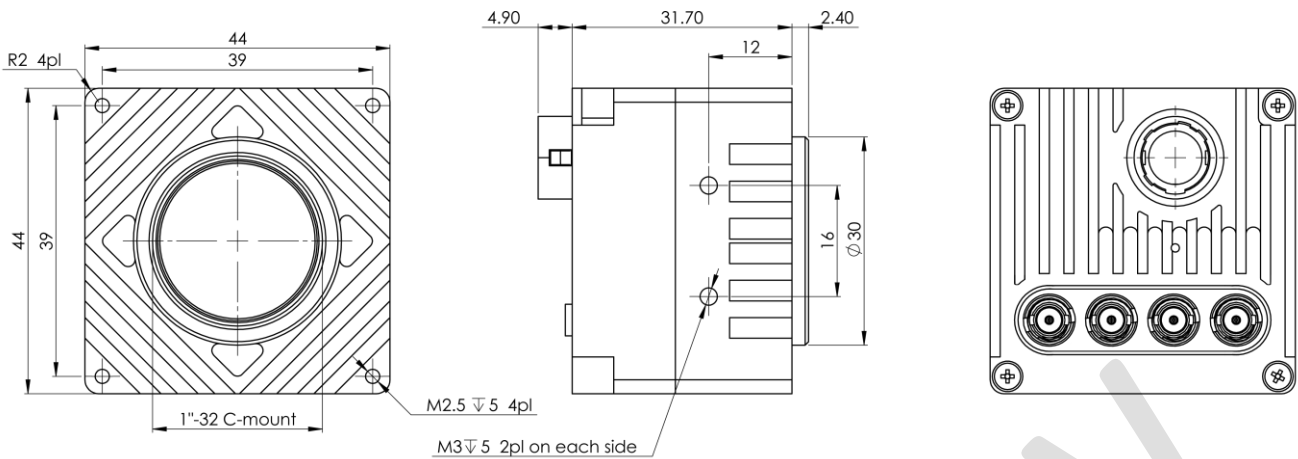


For example: an Iron CoaXPress 2509 with a colored sensor, UV-IR cut filter and C-mount, with a GPIO would go by Iron2509-C-IRF-C-G-NPT-CG. Please contact a sales representative over at info@kayainstruments.com for a full list of peripherals including cables and frame grabbers.

GMAX2509 Spectral Responses



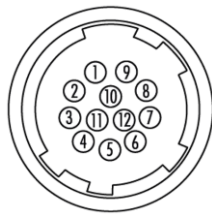
Mechanical Drawings*



* Mechanical Dimensions are subject to change

General Purpose Input Output

GPIO Pinout – 12 Pin Hirose Connector



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

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:



❖ Supported vision libraries:



❖ Supported operating systems:



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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