

## Iron CoaXPress 0505

# Iron CoaXPress Small Form Factor, Ruggedized Camera

### Innovative Approach

The **Iron 0505** 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 25 MP high quality video at rates of up to 150fps.

### Intelligent Design

Our camera incorporates Gpixel's GMAX0505 sensor – manufactured in Israel by the company's Belgian branch. The GMAX0505 is a global shutter sensor with a 2.5µm 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:

- 25 Megapixel up to 150 fps
- Monochrome, Color and enhanced NIR 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
- Board level and packaged camera options

## Technical Data

Feature	Description
Pixel size	2.5 $\mu\text{m}$ x 2.5 $\mu\text{m}$
Resolution	5120 (H) x 5120 (V)
Sensor size	12.8 mm x 12.8 mm   1.1"
Sensor	Gpixel GMAX0505
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	150 fps @ 10 bit 42 fps @ 12 bit
Image acquisition	Continuous / Triggered
Camera control	GenCam
Electronic shutter	Global shutter
Monochrome/ color	Monochrome / Color / Red Fox (NIR enhanced)
Temporal noise	<1.6 e <sup>-</sup>
Full well charge	6.7 ke <sup>-</sup>
Dynamic range	> 60dB @ 10 bit > 65dB @ 12 bit
Signal-to-noise ratio (SNR max)	38.1dB
Quantum efficiency (QE) X FF	<65.5% @500nm
Shortest exposure	2.5 $\mu\text{s}$
On camera processing	<ul style="list-style-type: none"> <li>Defect pixel correction</li> <li>ROI</li> <li>Frame counter</li> <li>Flat field / Fixed patter noise correction</li> <li>Auto/Manual black level</li> <li>Auto Exposure/Gain</li> <li>Auto/Manual White balance</li> <li>Image flip</li> <li>LUT</li> <li>Gain (Analog / Digital)</li> <li>Binning</li> <li>Operational Time Counter</li> </ul>
GPIO connection	Two inputs, two outputs, external trigger & strobe controller

## Mechanical & Electrical

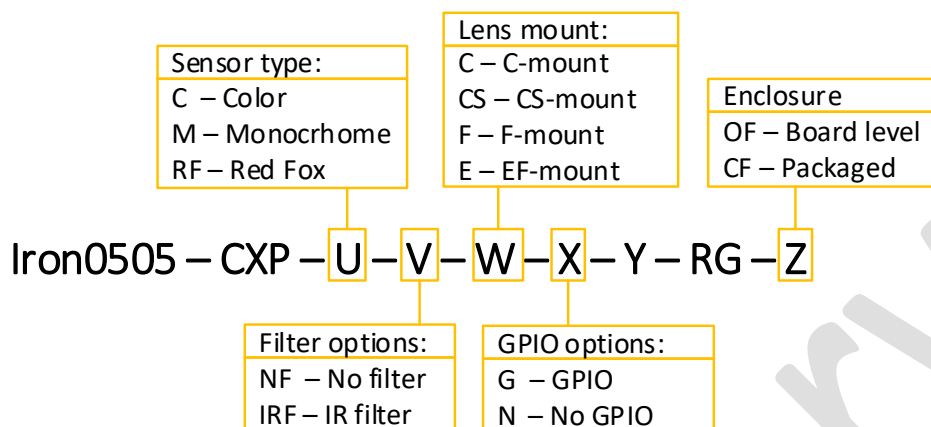
Feature	Description
Dimensions <sup>[1]</sup>	44 mm x 44 mm x 39 mm (Height x Width x Depth)
Weight (without lens)	<100g
Typical current	210mA @ 24V
Operating temperature	-40°C to 80°C, 20-85% humidity (non-condensing)
Storage temperature	-40°C to 85°C, 20-85% humidity (non-condensing)
Operational shock	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

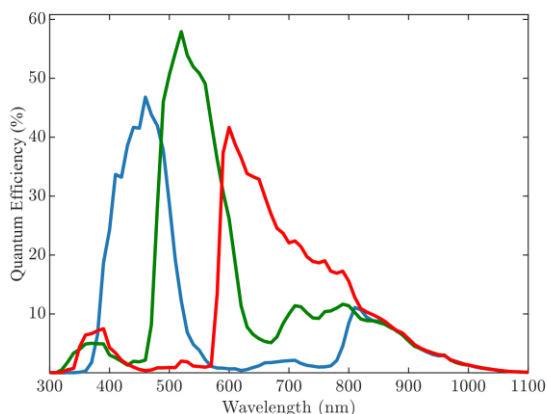
KAYA's Part Numbers are intuitive and derived directly from the product's properties. Each index represents a different property of the camera, according to the following diagram:



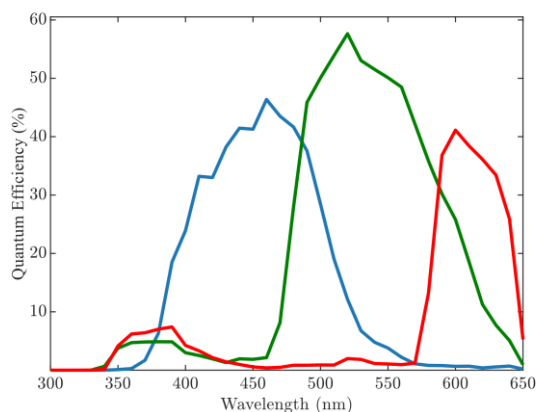
For example: an Iron CoaXPress 0505 with a colored sensor, UV-IR cut filter and C-mount, with a GPIO and with an enclosure would go by Iron0505-C-IRF-C-G-NPT-RG-CF. Please contact a sales representative over at [info@kayainstruments.com](mailto:info@kayainstruments.com) for a full list of peripherals including cables and frame grabbers.

## GMAX0505 Spectral Responses

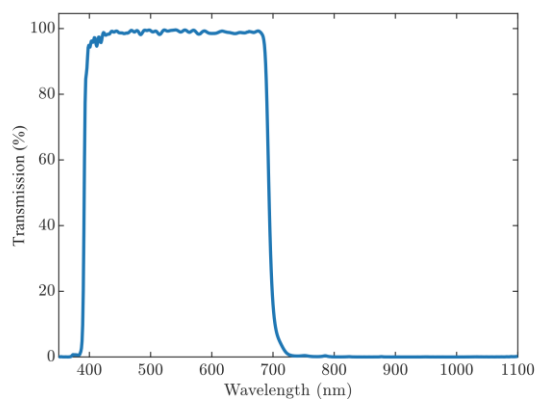
**GMAX0505 Color**



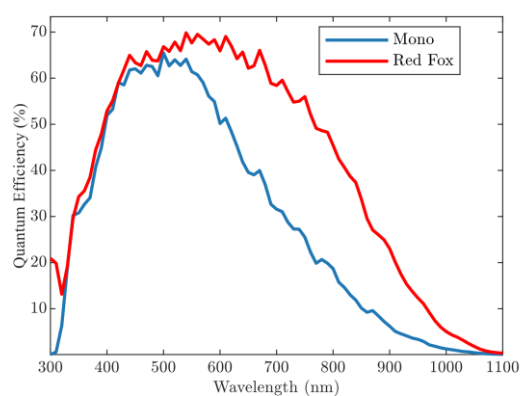
**GMAX0505 Color, IR Cut Filter**



**IR Cut Filter**

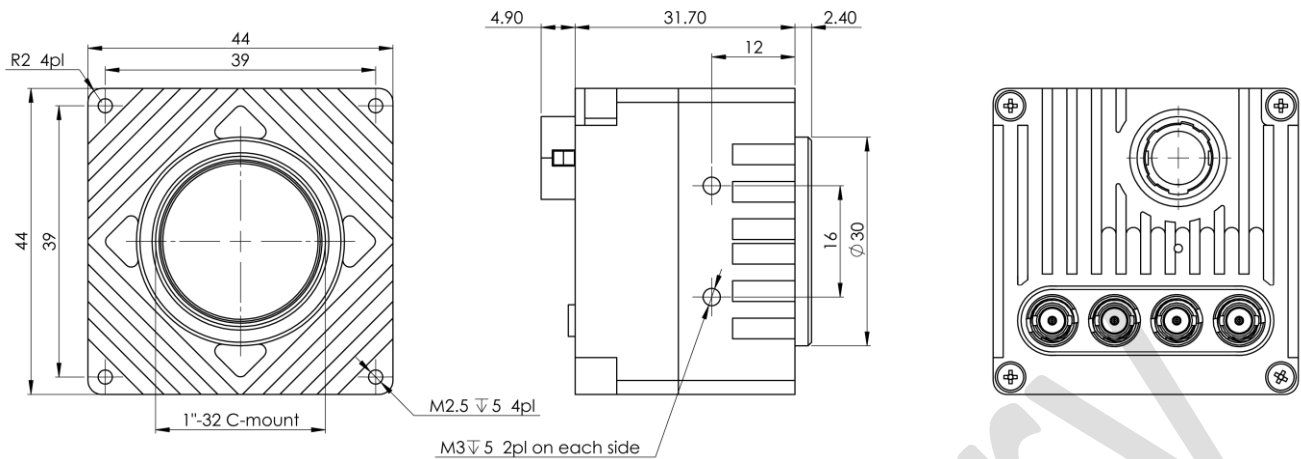


**GMAX0505 Mono \ Red Fox**



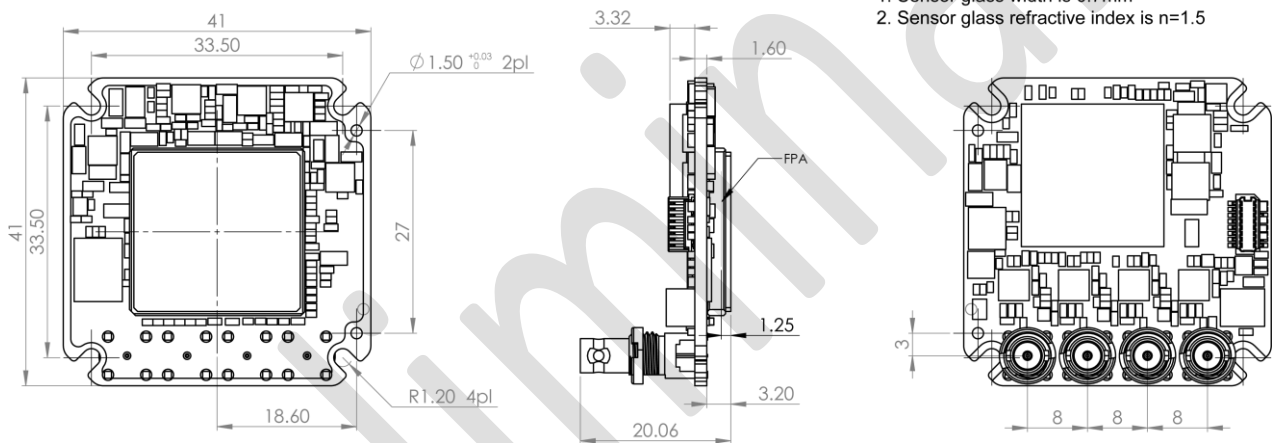
## Mechanical Drawings\*

Enclosed camera:



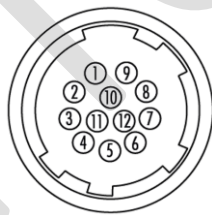
\* Mechanical Dimensions are subject to change

Board Level Camera:



## 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 (OPTO)           |
| 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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