

Iron0505 CoaXPress

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 v2.1 interface (Micro-BNC connector) which supports 25 MP high quality video at rates of up to 150 fps.

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. The camera has two models NS which operates at 12bits and HS which operates at 10bits and higher frame rates.

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 11W 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 μm x 2.5 μm
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 v2.1 up to 50Gbps (CXP3, CXP6, CXP12) for HS version x 2 channels CoaXPress v2.1 up to 50Gbps (CXP3, CXP6, CXP12) for NS version
Interface connector	x 4 Micro-BNC for HS version x 2 Micro-BNC for NS version
Output resolution	8 bit, 10 bit, 12 bit
Max frame rate	High Speed Version: 150 fps @ 8 bit, 145 fps @ 10 bit Normal Speed Version: 41 fps @ 8, 10 and 12 bit
Image acquisition	Continuous / Triggered
Camera control	Gen<i>Cam
Electronic shutter	Global shutter
Monochrome/ color	Monochrome / Color / Red Fox (NIR enhanced)
Temporal noise	<1.6 e^-
Full well charge	6.7 ke^-
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 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

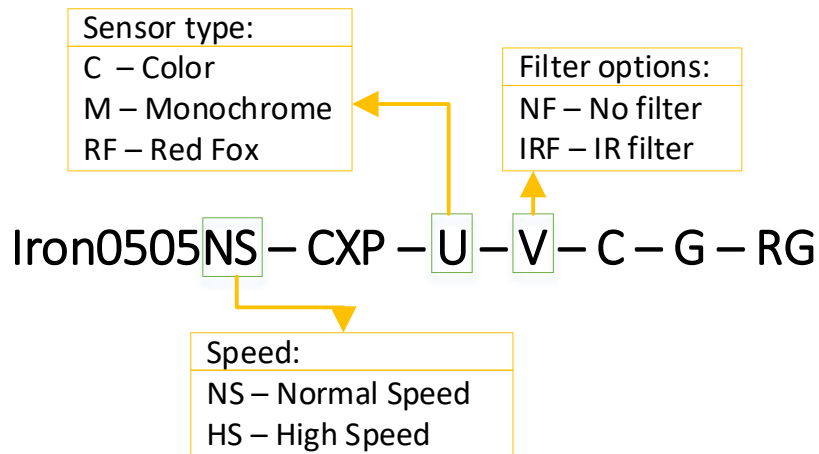
Feature	Description
Dimensions ^[1]	44 mm x 44 mm x 39 mm (Height x Width x Depth)
Weight (without lens)	<100g
Typical current	210mA @ 24V
Operating temperature	-40°C to 80°C, 20-85% humidity (non-condensing)
Storage temperature	-40°C to 85°C, 20-85% humidity (non-condensing)
Operational shock	Tested 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	<11W @ 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

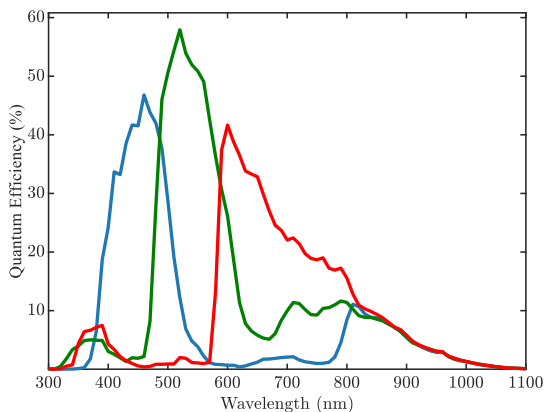
KAYA's Part Numbers are intuitive and derived directly from the product's properties. Each index represents a different property of the camera, according to the following diagram:



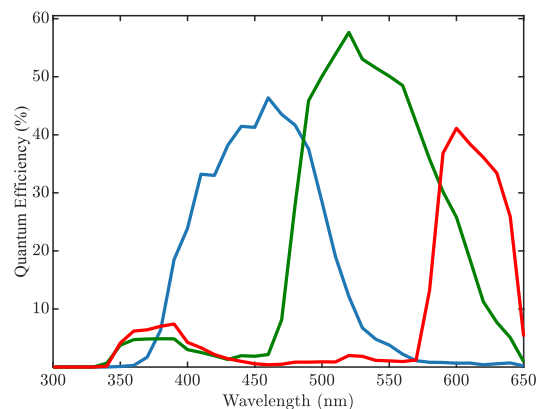
For example: an Iron CoaXPress 0505 with a colored sensor, UV-IR cut filter and C-mount, with a GPIO and with an enclosure would go by Iron0505-C-IRF-C-G-RG-CF. Please contact a sales representative over at info@kayainstruments.com for a full list of peripherals including cables and frame grabbers.

GMAX0505 Spectral Responses

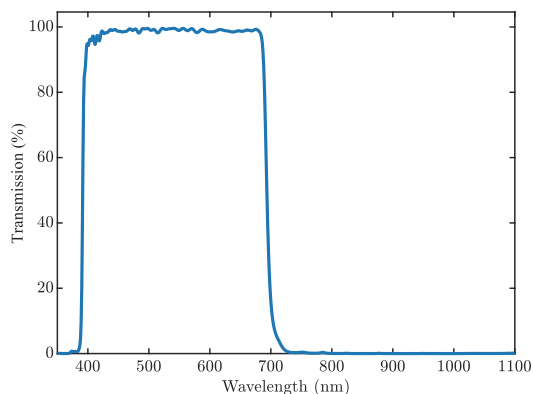
GMAX0505 Color



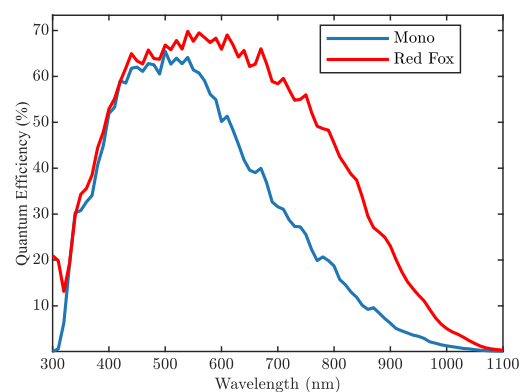
GMAX0505 Color, IR Cut Filter



IR Cut Filter

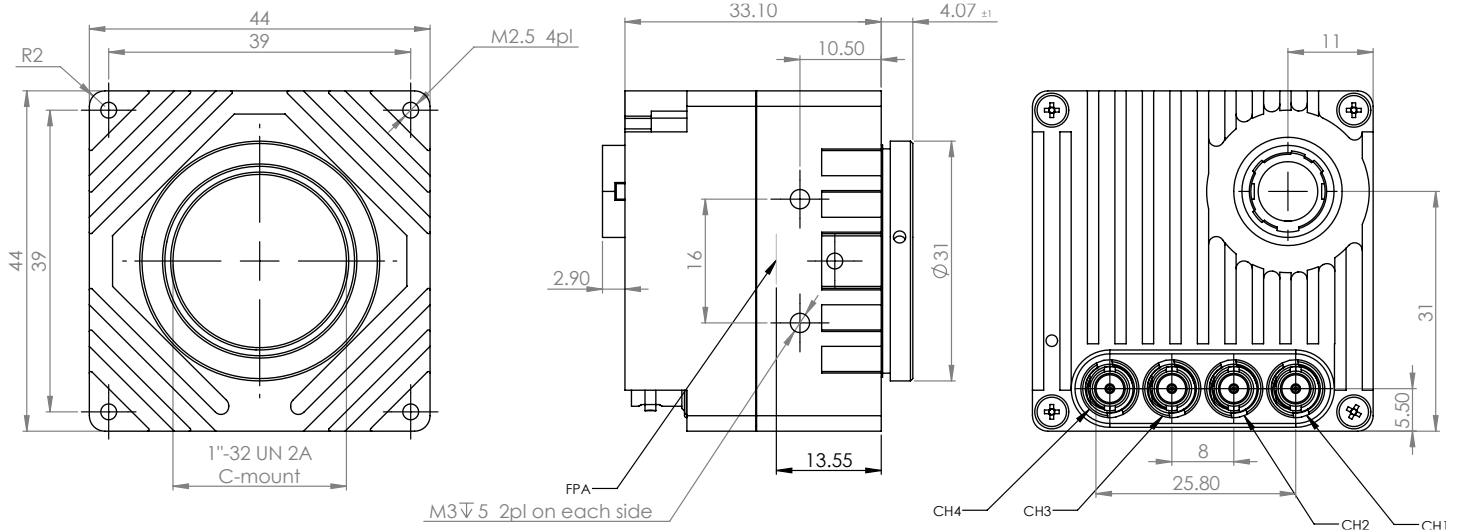


GMAX0505 Mono \ Red Fox



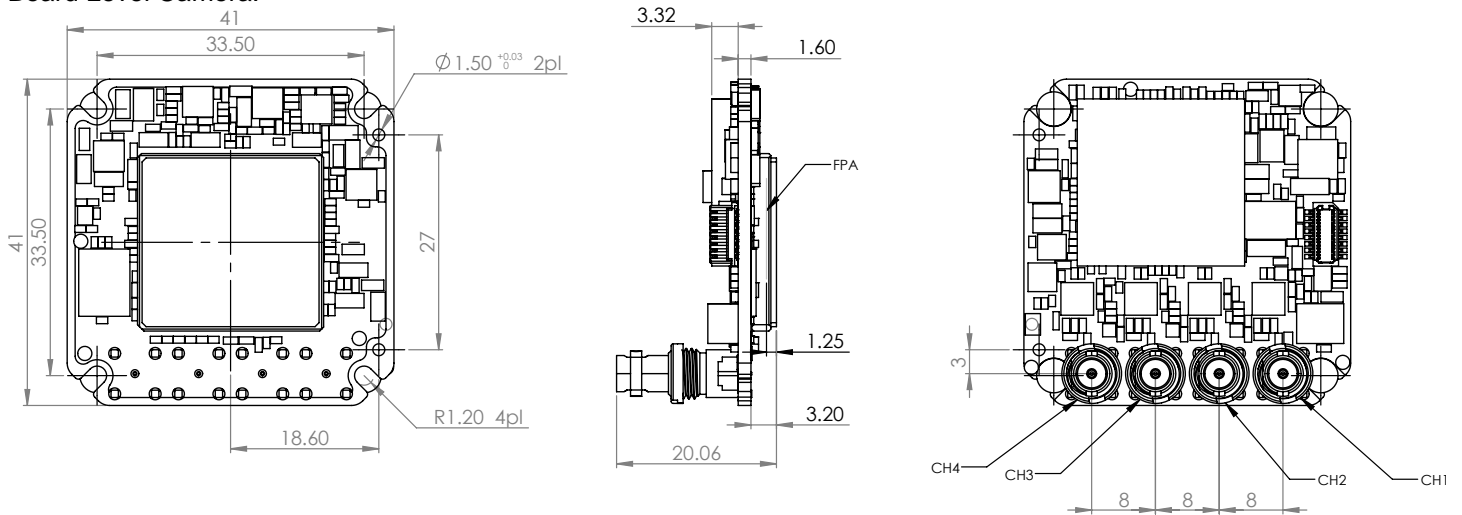
Mechanical Drawings*

Enclosed camera:



* Mechanical Dimensions are subject to change

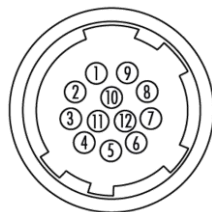
Board Level Camera:



NOTE : 1. For NS version channels CH3 and CH4 are not assembled . 2. For board level , Sensor glass with is 0.7mm with RI=1.5

General Purpose Input Output

GPIO Pinout – 12 Pin Hirose Connector



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

*All outputs operate at TTL (5V) standard levels and can provide current of up to 8mA. *All inputs can operate either on LVTTL (3.3V) or TTL (5V) standard levels.

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@skyblue.de** – we will be happy to provide assistance and consultation.

International Distributors



Sky Blue Microsystems GmbH
Geisenhausenerstr. 18
81379 Munich, Germany
+49 89 780 2970, info@skyblue.de
www.skyblue.de



In Great Britain:
Zerif Technologies Ltd.
Winnington House, 2 Woodberry Grove
Finchley, London N12 0DR
+44 115 855 7883, info@zerif.co.uk
www.zerif.co.uk