



## Iron CoaXPress 253

# Iron CoaXPress Small Form Factor, Ruggedized Camera

### Innovative Approach

The **Iron CoaXPress 253** is an ultra-thin high speed, low-cost, low-power global shutter CMOS camera with a micro-BNC interface which supports 12.29 MP high quality video at rates up to 63.8 fps.

### Intelligent Design

Our camera incorporates Pregius's IMX253 global shutter sensor with a 3.45 $\mu$ m pixel size. With an extremely compact outline the **Iron** can be fitted into tight spaces. Superior sensor performance allows very low light vision capabilities.

### Applications:

- Perimeter vision
- Low light surveillance
- Special Effects
- Virtual Reality
- 3D

### Key Features:

- 12.29 Megapixel up to 63.8 fps
- Monochrome and Color models
- Up to 3.2W power at full rate
- Full image processing feature set
- Optional Pan/Tilt alignment of the sensor
- Up to 12.5 Gbps CoaXPress interface
- C, CS, F or EF mounts available
- Commercial and rugged industrial grade options
- 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	3.45 μm x 3.45 μm
Resolution	4096 (H) x 3000 (V)
Sensor Size	17.5 mm diagonal
Sensor	Sony Pregius IMX253 CMOS sensor
Output Interface	6.25 Gbps CoaXPress 1.1, 12.5 Gbps CoaXPress 2.0
Interface Connector	Micro-BNC
Output Resolution	8, 10 or 12 bit
Max Frame Rate	63.8 fps @8 bit resolution 63.8 fps @10 bit resolution 45.5 fps @12 bit resolution
Image Acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic Shutter	Global shutter
Sensor Positioning	Full pan/tilt calibration for optical axes <b>(optional)</b>
Monochrome/ Color	Monochrome / Color
Temporal Noise	< 2.2 e <sup>-</sup> @25°C
Full Well Charge	9828 e <sup>-</sup>
Dynamic Range	> 70.8dB @520nm
Signal-to-Noise Ratio (SNR max)	40 dB @520nm
Quantum Efficiency (QE) X FF	> 63% @525nm
Shortest Exposure	10μs
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 <b>(optional)</b>

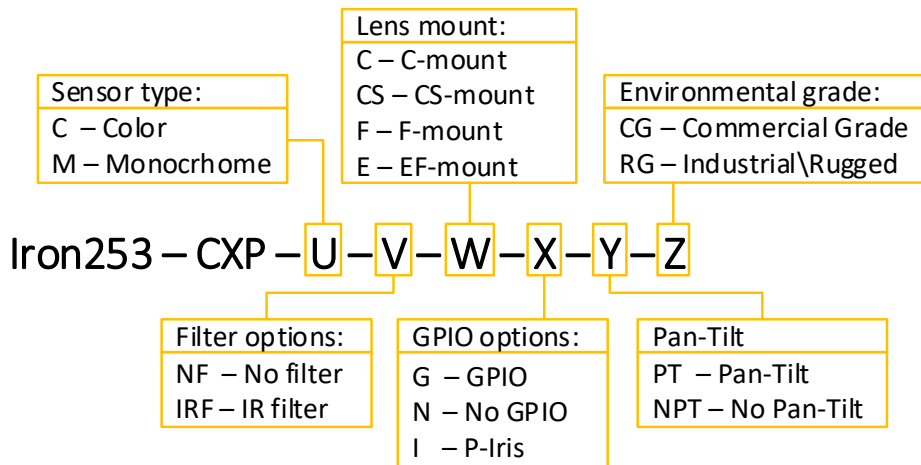
## Mechanical & Electrical

Feature	Description
Dimensions (including lens mount)	Commercial: 44 mm x 44 mm x 35.3 mm (Height x Width x Depth) Industrial: 44 mm x 44 mm x 35.1 mm (Height x Width x Depth)
Weight (without lens)	Commercial: ~50g Industrial: ~90g
Operating Temperature	Commercial: 0°C to 50°C, 20-85% humidity (non-condensing) Industrial: -40°C to 80°C, 20-85% humidity (non-condensing)
Storage Temperature	Commercial: 0°C to 55°C, 20-85% humidity (non-condensing) Industrial: -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	<3.2W @ 24V DC

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

## Ordering Information

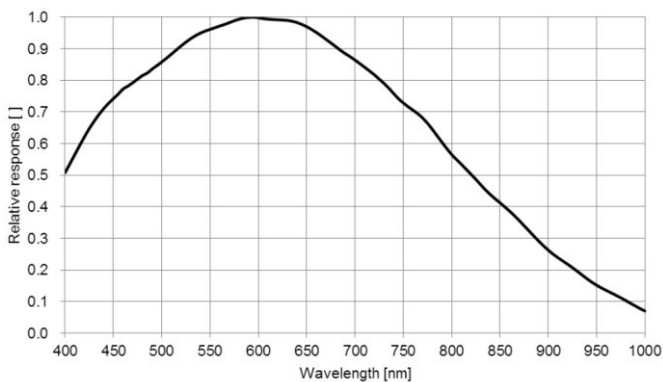
KAYA's Part Numbers are intuitive and derived directly from the product's properties. Each index represents a different property of the camera, according to the following diagram:



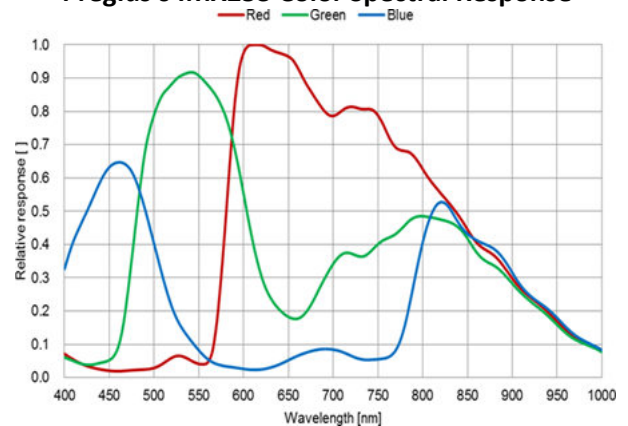
For example: an Iron CoaXPress 253 with a colored sensor, UV-IR cut filter and C-mount, with no GPIO or pan-tilt that is rated for commercial use would go by Iron253-C-IRF-C-N-NPT-CG. Please contact a sales representative over at [info@skyblue.de](mailto:info@skyblue.de) for a full list of peripherals including cables and frame grabbers.

## Absolute Quantum Efficiency

Pregius's IMX253 Mono Spectral Response

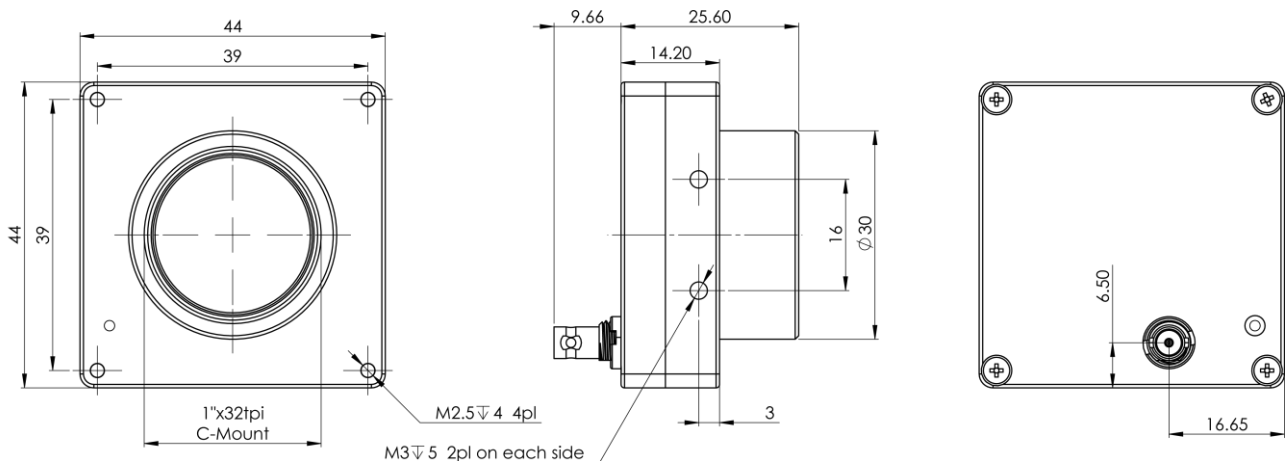


Pregius's IMX253 Color Spectral Response

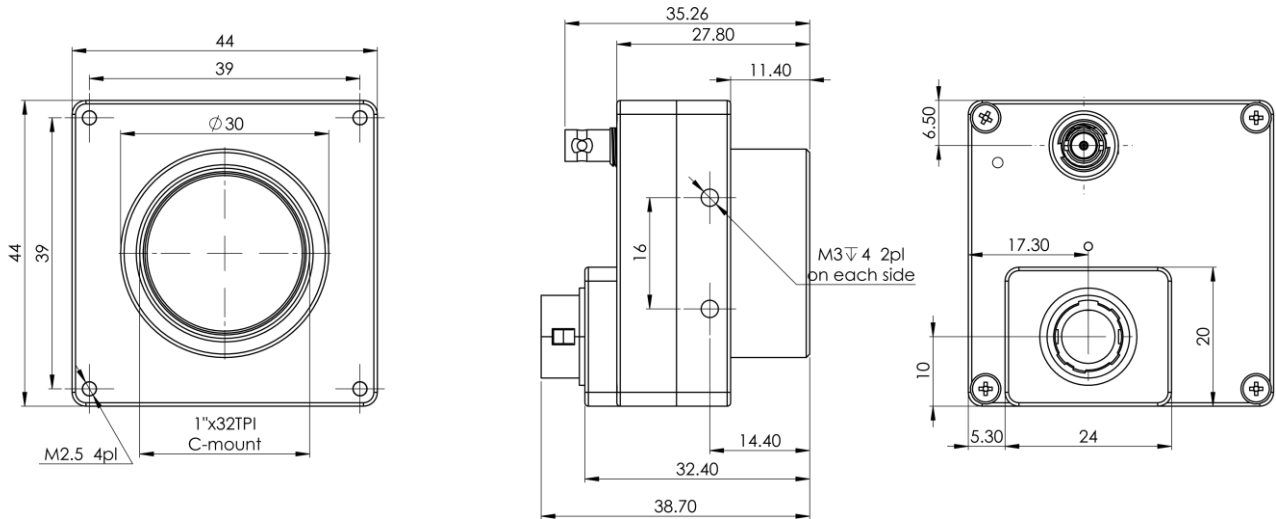


## Mechanical Drawings

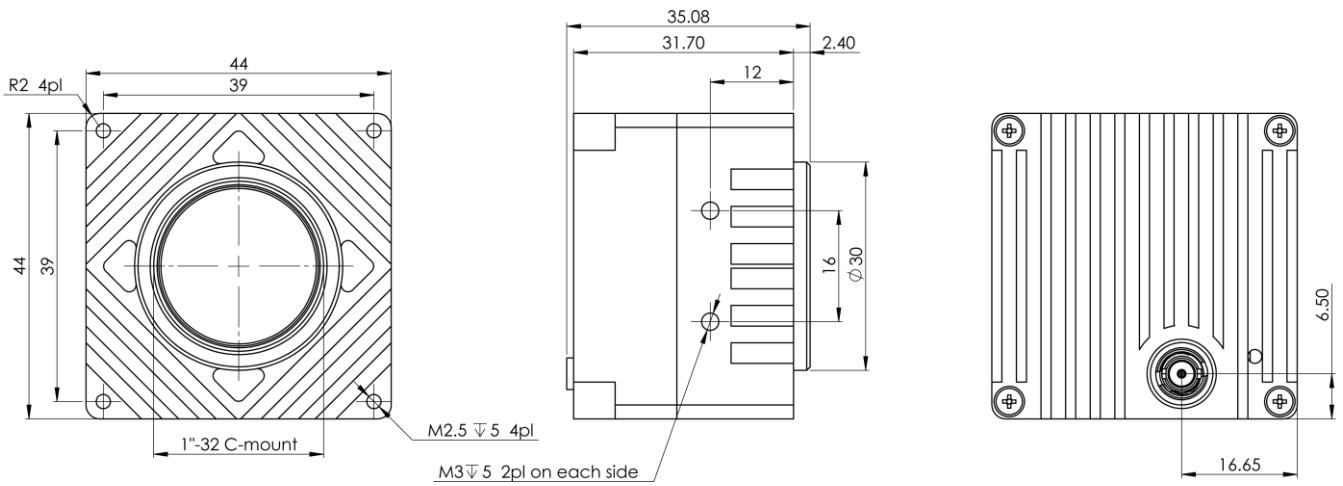
Commercial grade, no GPIO:



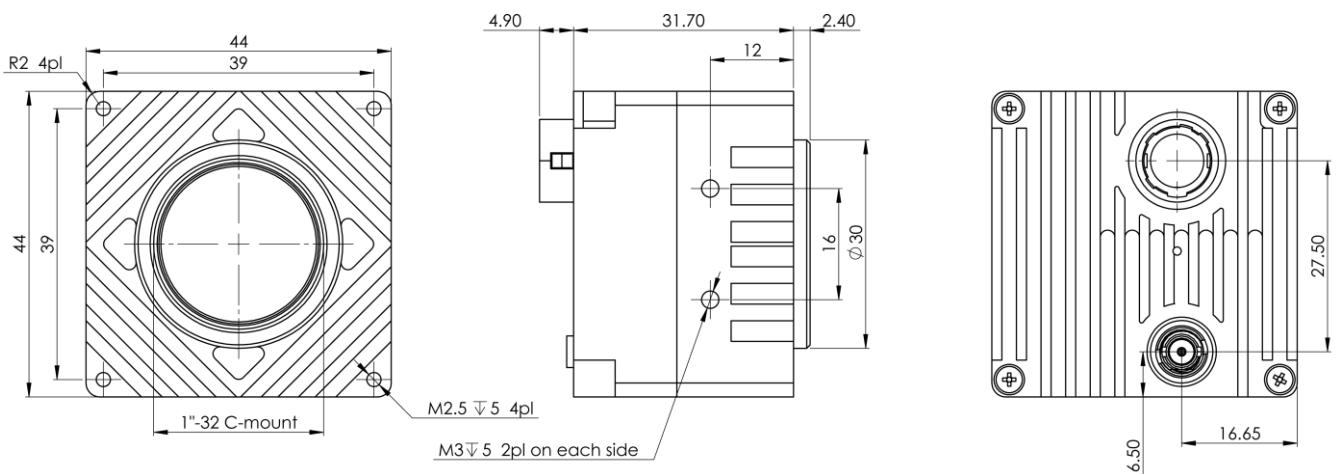
Commercial grade, with GPIO:



Industrial grade, no GPIO:

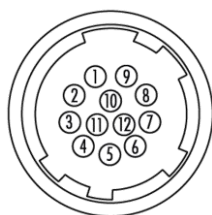


Industrial grade, with GPIO:



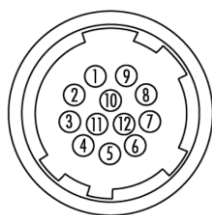
## General Purpose Input Output

### 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)         |

### GPIO with P-Iris Pinout – 12 Pin Hirose Connector



- |                   |                     |
|-------------------|---------------------|
| 1. Common Ground  | 7. Out2 Signal      |
| 2. Supply Voltage | 8. IN1 (TTL)        |
| 3. RS232 RX       | 9. IRIS Motor B 2   |
| 4. RS232 TX       | 10. IN1/OUT1 Return |
| 5. IRIS Motor A 1 | 11. IRIS Motor B 1  |
| 6. Out1 Return    | 12. IRIS Motor A 2  |

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

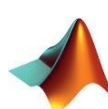
**KAYA Instruments** creates and maintains compatibility and interfaces for the most common and advanced vision image processing libraries and applications.

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

❖ Supported vision standards:



❖ Supported vision libraries:



❖ Supported operating systems:



Linux

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](mailto:info@skyblue.de) – we will be happy to provide assistance and consultation.

### International Distributors

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