

## Datasheet Iron252 CoF

### Iron252 CoF

3.1 Megapixel, Small, Rugged,  
Low Power with Large Feature Set

#### Innovative Approach

**Iron252 CoF** is an ultra-thin high speed, low-cost, low-power Global shutter CMOS camera with a SFP+ interface which supports 3.1 Megapixel high quality video at rates up to 205.8 fps.

#### Intelligent Design

With an extremely compact form factor, the **Iron252 CoF** fits into small spaces. The superior sensor performance provides high quality images with great dynamic range, low noise and excellent low-light vision capabilities.

#### Key Features:

- 3.1 Megapixel up to 205.8 fps
- Monochrome and Color sensor variation
- Up to 3.2 W power at full rate
- Full image processing feature set
- CoaXPress-over-Fiber (CoF) v2.1 standard compliant
- GenCam compliant
- 1 CoaXPress-over-Fiber (CoF) link
- C lens mounts available
- Commercial and Industrial grade options
- Full EMVA1288 report
- Full built-in self-test (BIT)
- Full built-in voltage testing
- Customization as per user requirements

#### Applications:

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

# TECHNICAL DATA

General	
Pixel Size	4.5 $\mu\text{m}$ x 4.5 $\mu\text{m}$
Resolution	2048 (H) x 1536 (V)
Sensor Size	11.5 mm diagonal
Sensor	Sony Pregius IMX252
Sensor Type	CMOS
Output Interface	CoaXPress-over-Fiber (CoF) v2.1
Supported Interface rates	10G
Interface Connector	SFP+
Number of Connectors	1
Output Resolution	8, 10 or 12 bit
Maximum Frame Rate	<ul style="list-style-type: none"> <li>• 205.8 fps @8 bit resolution</li> <li>• 176.4 fps @10 bit resolution</li> <li>• 112.3 fps @12 bit resolution</li> </ul>
Tap Geometry	1X-1Y
Image Acquisition	Continuous / Triggered
Camera Control	Gen <i>i</i> Cam
Electronic Shutter	Global
Monochrome / Color	Monochrome or Color
Temporal Noise	<2.2 e <sup>-</sup> at 25°C
Full Well Charge	9828 e <sup>-</sup>
Dynamic Range	>70.8 dB at 520 nm
Signal-to-Noise Ratio (SNR max)	40 dB at 520 nm
Quantum Efficiency (QE)	>63% at 520 nm
Shortest Exposure	10 $\mu\text{s}$
IR Filter (optional)	<ul style="list-style-type: none"> <li>• UV cut below 400 nm</li> <li>• IR cut above 700 nm</li> </ul>
Exposure control	Automatic/Manual
Gain control	Automatic/Manual
Color Control	<ul style="list-style-type: none"> <li>• RGB offsets</li> <li>• Auto / Manual White balance</li> <li>• LUT</li> </ul>
Image enhancement	<ul style="list-style-type: none"> <li>• Defect pixel correction</li> <li>• Gain (Analog / Digital)</li> <li>• Auto / Manual black level</li> <li>• Binning</li> <li>• Auto Exposure / Gain</li> <li>• Flat field / Fixed pattern noise correction</li> </ul>
Additional on camera processing	<ul style="list-style-type: none"> <li>• ROI</li> <li>• Image flip</li> <li>• Frame counter</li> <li>• Operational Time Counter</li> <li>• Binning</li> </ul>

Power Input	• External 11 V - 28 V input
Power Consumption	<3.2 W at 24 V DC
Configuration software	Gen<i>Cam Standard software
Synchronization	Protocol/External I/O Trigger
Exposure Strobe output	Yes

## General Purpose Inputs and Outputs

I/O lines	<ul style="list-style-type: none"> <li>• 1 opto-isolated input</li> <li>• 1 opto-isolated output</li> <li>• 1 singled-ended TTL output</li> <li>• 1 singled-ended TTL/LVTTL input</li> </ul>
Usage	<ul style="list-style-type: none"> <li>• Any System I/O input lines can be connected to any I/O output line</li> <li>• Any I/O input line can generate any trigger event</li> <li>• Any I/O input line can trigger a timer</li> <li>• Any I/O input line can trigger a counter</li> </ul>
Electrical specifications	<ul style="list-style-type: none"> <li>• TTL lines: 5 V TTL compliant</li> <li>• LVTTL lines: 3.3 V LVTTL compliant</li> <li>• Isolated lines: opto-isolated lines with voltage range up to 30 V</li> </ul>
Timers	<ul style="list-style-type: none"> <li>• 4 general purpose timers</li> <li>• Configurable delay and duration</li> <li>• 32-bit accumulator</li> </ul>
Counters	<ul style="list-style-type: none"> <li>• 4 general purpose counters</li> <li>• Configurable value and duration</li> <li>• 32-bit counter</li> </ul>

## Mechanical

Dimensions (including lens mount)	45.8 mm x 45.8 mm x 86.8 mm (1.8" x 1.8" x 3.4")
Weight (without lens)	180 g (6.3 oz)
Lens Mount	C
Sensor Alignment	Active
Ingress Protection	Optional IP67 (with protective lens tube)

## Environmental Conditions

Operating ambient air temperature	Commercial : 0°C to +50°C ( 32°F to +122°F) Industrial : -40.0°C to +70°C ( -40°F to +158°F)
Operating ambient air humidity	10% to 90% RH non-condensing
Storage ambient air temperature	Commercial : 0°C to +55°C ( 32°F to +131°F) Industrial : -40.0°C to +75°C ( -40°F to +167°F)
Storage ambient air humidity	10% to 90% RH 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
MTBF	2,100,000 hrs @ 50C (Telecordia)

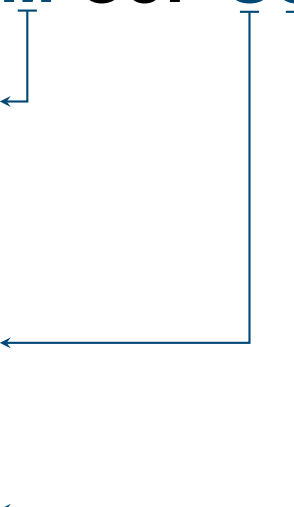
Certifications	
Electromagnetic - EMC standards	<ul style="list-style-type: none"> <li>• The European Council EMC Directive 2004/108/EC</li> <li>• The Unites States FCC rule 47 CFR 15</li> </ul>
EMC - Emission	<ul style="list-style-type: none"> <li>• EN 55022:2010 Class B</li> <li>• FCC 47 Part 15 Class B</li> </ul>
EMC - Immunity	<ul style="list-style-type: none"> <li>• EN 55024:2010 Class B</li> <li>• EN 61000-4-3</li> <li>• EN 61000-4-4</li> <li>• EN 61000-4-6</li> </ul>
Flammability	PCB compliant with UL 94 V-0
RoHS	Compliant with the European Union Directive 2011/65/EU (RoHS2)
REACH	Compliant with the European Union Regulation No 1907/2006
WEEE	Must be disposed of separately from normal household waste and must be recycled according to local regulations

# Iron252M-CoF-SC

Color options	
M	– Monochrome
I	– Mono with IR Filter
N	– Color w/o IR Filter
C	– Color

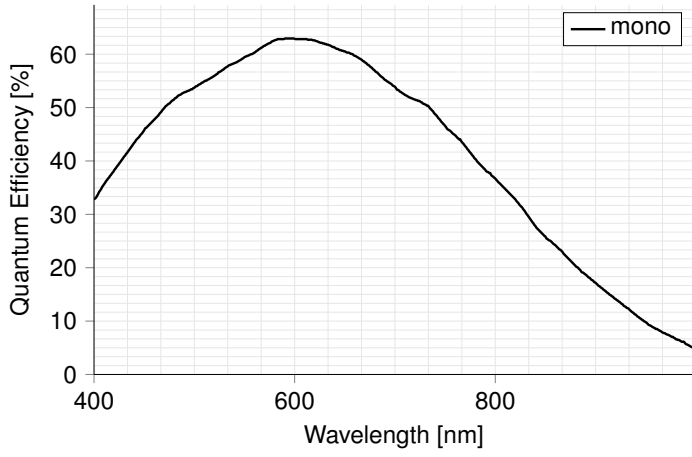
Grade	
S	– Commercial
R	– Industrial

Lens mount	
C	– C-Mount

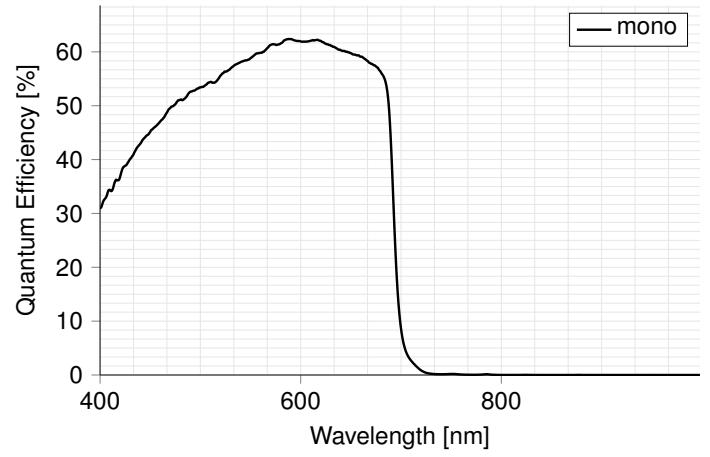


# SPECTRAL RESPONSE

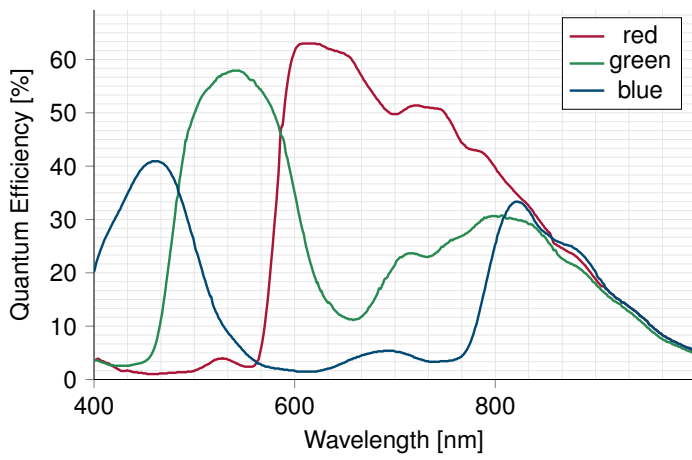
## Monochrome



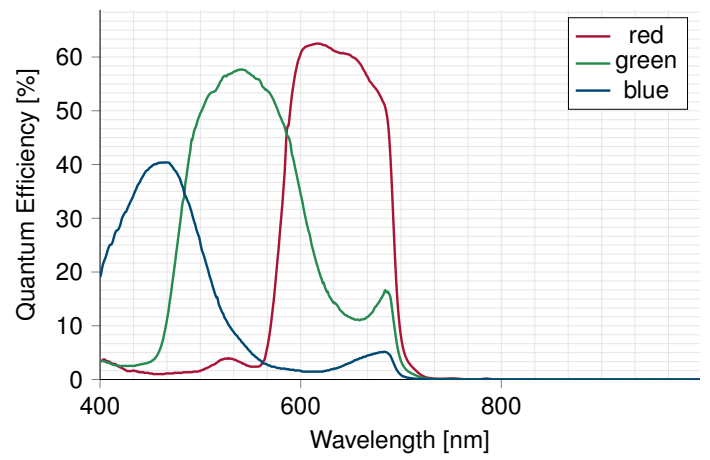
## Monochrome with IR Cut Filter



## Color

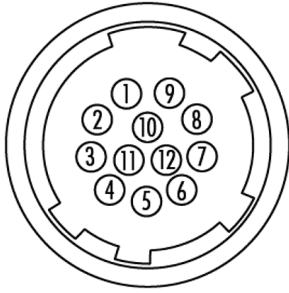


## Color with IR Cut Filter



# GENERAL PURPOSE INPUT OUTPUT

## GPIO Pinout – 12 Pin Hirose Connector



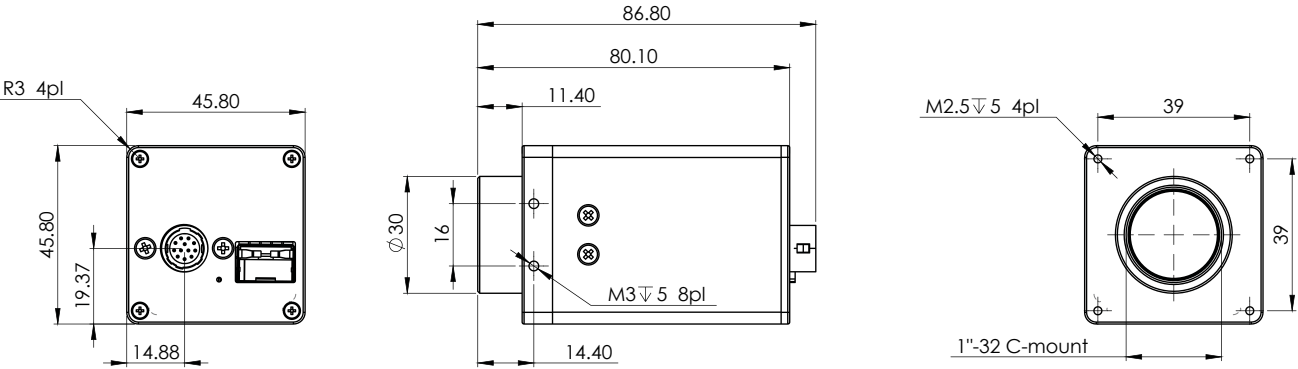
- |                    |                     |
|--------------------|---------------------|
| 1. DC Power return | 7. OUT1 (TTL)       |
| 2. DC Power        | 8. IN1 (OPTO)       |
| 3. RS232 RX        | 9. IN2 (TTL/LVTTL)  |
| 4. RS232 TX        | 10. IN1 Return      |
| 5. OUT2 Return     | 11. IN2/OUT1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

# MECHANICAL DRAWINGS

## C-Mount



*Dimensions are in millimeters.*



# 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.*

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