

## Datasheet Iron462 CoaXPress

### Iron462 CoaXPress

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

#### Innovative Approach

**Iron462 CoaXPress** is an ultra-thin high speed, low-cost, low-power Rolling shutter CMOS camera with a Micro-BNC interface which supports 2.1 Megapixel high quality video at rates up to 120.0 fps.

#### Intelligent Design

With an extremely compact form factor, the **Iron462 CoaXPress** 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:

- 2.1 Megapixel up to 120.0 fps
- Color sensor variation
- Up to 2.2 W power at full rate
- Full image processing feature set
- CoaXPress v2.1 standard compliant
- GenCam compliant
- 1 CoaXPress 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	2.9 $\mu\text{m}$ x 2.9 $\mu\text{m}$
Resolution	1920 (H) x 1080 (V)
Sensor Size	6.4 mm diagonal
Sensor	Sony IMX462
Sensor Type	CMOS
Output Interface	CoaXPress v2.1
Supported Interface rates	CXP-6 or CXP-3
Interface Connector	Micro-BNC
Number of Connectors	1
Output Resolution	8, 10 or 12 bit
Maximum Frame Rate	<ul style="list-style-type: none"> <li>• 120 fps @8 bit resolution</li> <li>• 120 fps @10 bit resolution</li> <li>• 60 fps @12 bit resolution</li> </ul>
Tap Geometry	1X-1Y
Image Acquisition	Continuous / Triggered
Camera Control	Gen <i>i</i> Cam
Electronic Shutter	Rolling
Monochrome / Color	Color
Temporal Noise	<2.8 e- at 25°C
Full Well Charge	10500 e-
Dynamic Range	>72 dB at 520 nm
Signal-to-Noise Ratio (SNR max)	42 dB at 520 nm
Quantum Efficiency (QE)	>80% at 520 nm
Shortest Exposure	14 $\mu\text{s}$
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	<ul style="list-style-type: none"> <li>• PoCXP</li> <li>• External 5 V - 28 V input</li> </ul>
Power Consumption	<2.2 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>• 2 singled-ended LVTTTL input/output</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>• LVTTTL lines: 3.3 V LVTTTL 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

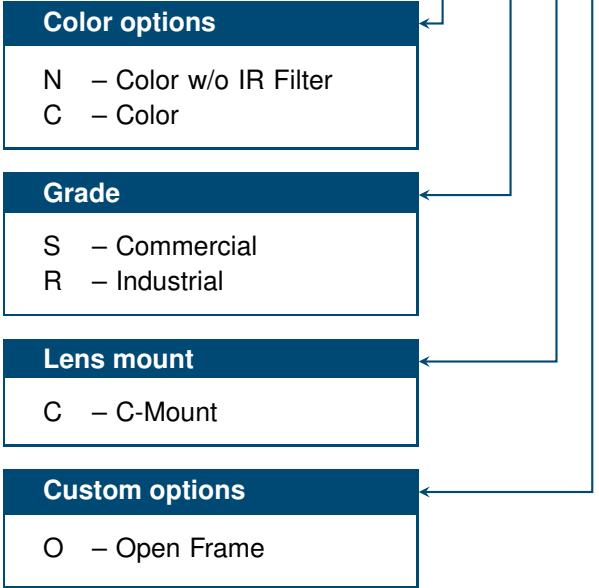
Dimensions (including lens mount)	44 mm x 44 mm x 34.82 mm (1.7" x 1.7" x 1.4")
Weight (without lens)	50 g (1.8 oz)
Lens Mount	C
Sensor Alignment	Active
Ingress Protection	Optional IP67 (with protective lens tube)

## Environmental Conditions

Operating ambient air temperature	Commercial : 0°C to +50°C ( 32°F to +122°F) Industrial : -40.0°C to +80°C ( -40°F to +176°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 +85°C ( -40°F to +185°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)

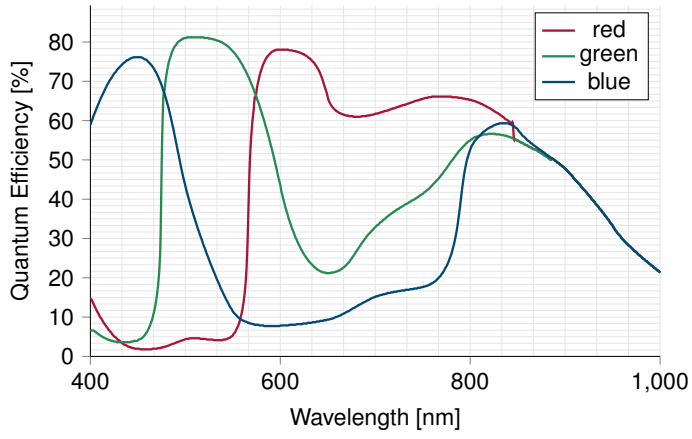
Certifications	
Electromagnetic - EMC standards	<ul style="list-style-type: none"> <li>• The European Council EMC Directive 2004/108/EC</li> <li>• The Unites States FCC rule 47 CFR 15</li> </ul>
EMC - Emission	<ul style="list-style-type: none"> <li>• EN 55022:2010 Class B</li> <li>• FCC 47 Part 15 Class 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

# Iron462C-SC

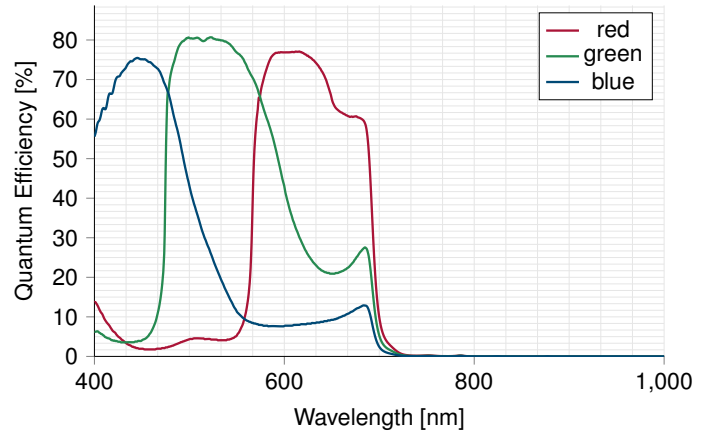


# SPECTRAL RESPONSE

## Color

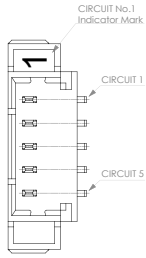


## Color with IR Cut Filter

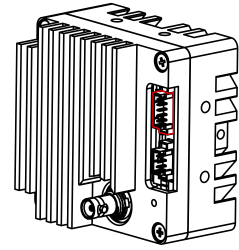


# GENERAL PURPOSE INPUT OUTPUT

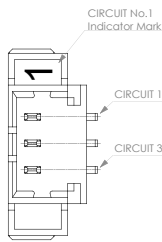
## GPIO Pinout – 5 Pin Molex Picoblade Connector



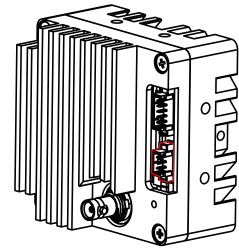
1. GND
2. RS232 TX
3. RS232 RX
4. GPIO0 (LVTTL)
5. GPIO1 (LVTTL)



## GPIO Pinout – 3 Pin Molex Picoblade Connector



1. Reserved
2. GND
3. DC Power



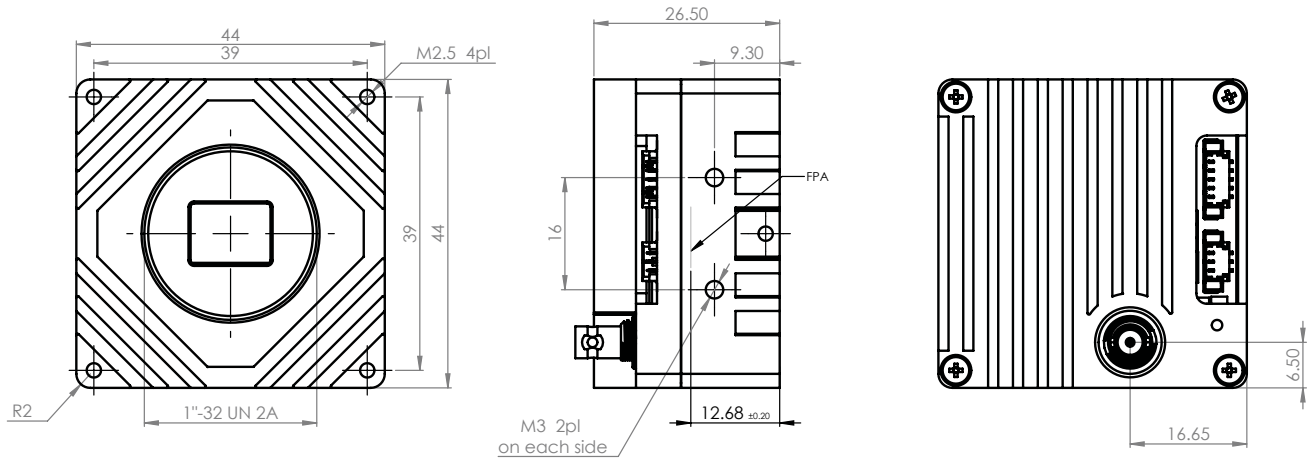
NOTE: LVTTL IO is TTL input compatible

The GPIO connectors used on the camera is a Molex Picoblade connectors. It is recommended to use a cable with a matching connector. Manufacturers part numbers are listed below:

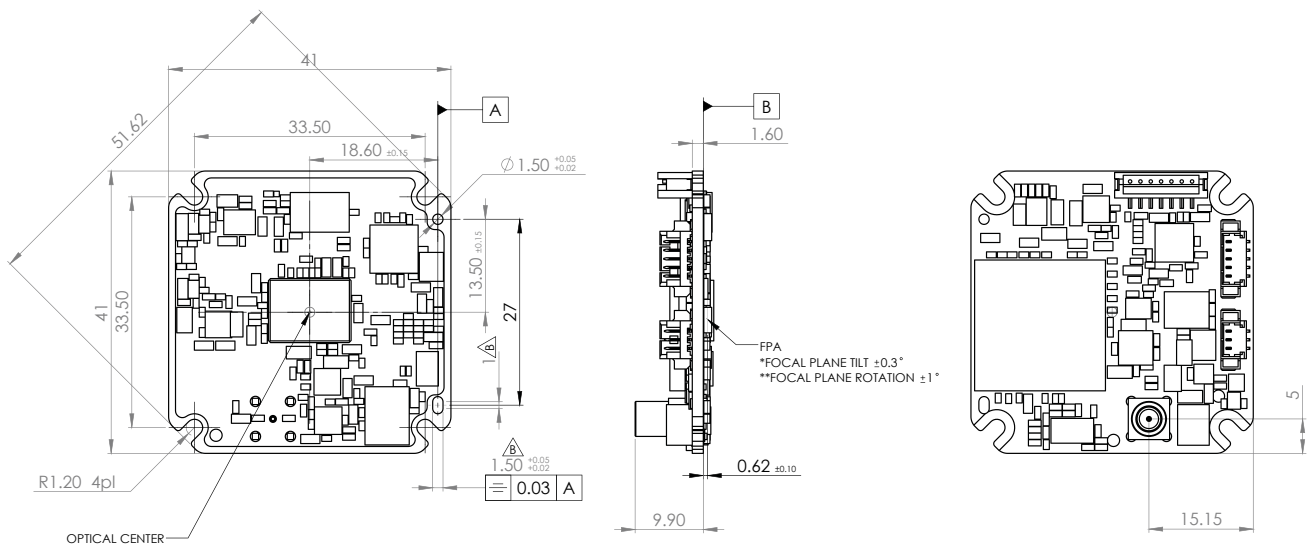
Product Name	Product Part Number
Molex 3P PicoBlade PCB Header	Molex 0533980367
Molex 5P PicoBlade PCB Header	Molex 533980567
Loose cable accessory set	KAYA Instruments KY-CBL-027

# MECHANICAL DRAWINGS

## C-Mount



## Board Level



*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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