



# Datasheet Iron3249 CoaXPress

## Iron3249 CoaXPress

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

### Innovative Approach

**Iron3249 CoaXPress** is an ultra-thin high speed, low-cost, low-power Global shutter CMOS camera with a Micro-BNC interface which supports 49.1 Megapixel high quality video at rates up to 35.0 fps.

### Intelligent Design

With an extremely compact form factor, the **Iron3249 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:

- 49.1 Megapixel up to 35.0 fps
- Monochrome and Color sensor variation
- Up to 9 W power at full rate
- Full image processing feature set
- CoaXPress v2.1 standard compliant
- Gen<i>Cam</i> compliant
- Up to 2 CoaXPress links
- F, M42, EF or Active EF 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	3.2 μm x 3.2 μm
Resolution	7008 (H) x 7000 (V)
Sensor Size	31.7 mm diagonal
Sensor	Gpixel GMAX3249
Sensor Type	CMOS
Output Interface	CoaXPress v2.1
Supported Interface rates	CXP-12, CXP-6 or CXP-3
Interface Connector	Micro-BNC
Number of Connectors	2
Output Resolution	8, 10 or 12 bit
Maximum Frame Rate	<ul style="list-style-type: none"><li>• 35 fps @8 bit resolution</li><li>• 35 fps @10 bit resolution</li><li>• 35 fps @12 bit resolution</li></ul>
Tap Geometry	1X-1Y
Image Acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic Shutter	Global
Monochrome / Color	Monochrome or Color
Temporal Noise	<2.3 e- at 25°C
Full Well Charge	10900 e-
Dynamic Range	>65 dB at 520 nm
Signal-to-Noise Ratio (SNR max)	38.1 dB at 520 nm
Quantum Efficiency (QE)	>65.3% at 520 nm
Shortest Exposure	13.35 μs
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 10 V - 28 V input</li> </ul>
Power Consumption	<9 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)	62 mm x 62 mm x 44.4 mm (2.4" x 2.4" x 1.7")
Weight (without lens)	450 g (15.9 oz)
Lens Mount	F, M42, EF or Active EF
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	1,600,000 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

# Iron3249HSM-SF

Speed

– Normal Speed

HS – High Speed

Color options

M – Monochrome

I – Mono with IR Filter

N – Color w/o IR Filter

C – Color

Grade

S – Commercial

R – Industrial

Lens mount

F – Nikon F-Mount

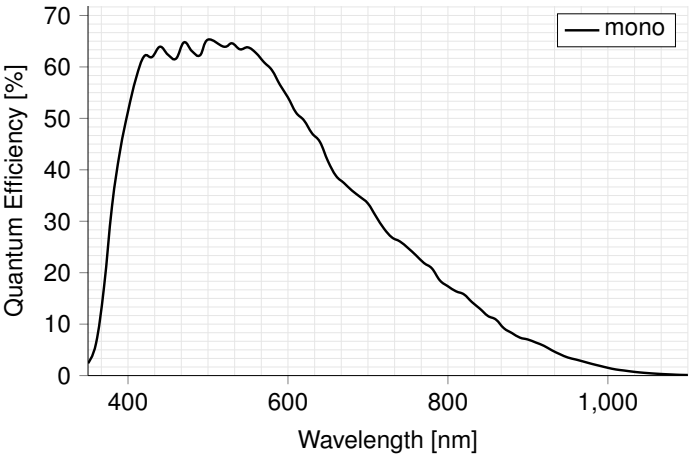
M – M42-Mount

E – Canon EOS-Mount

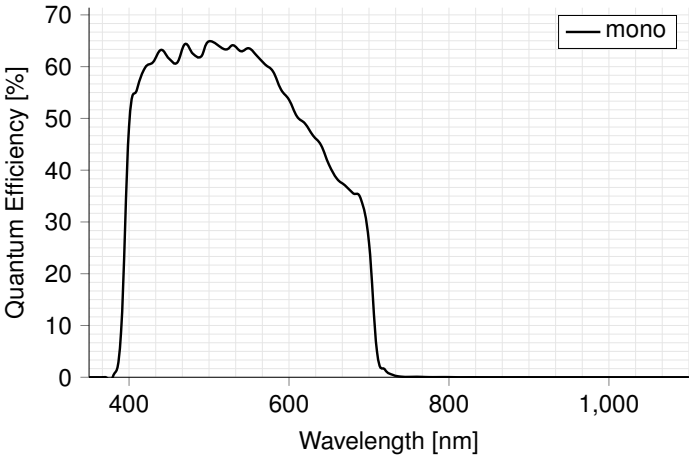
B – Active Canon Mount

# SPECTRAL RESPONSE

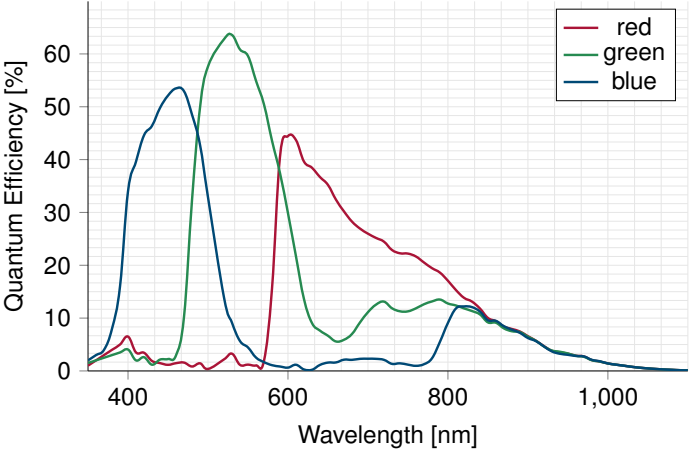
Monochrome



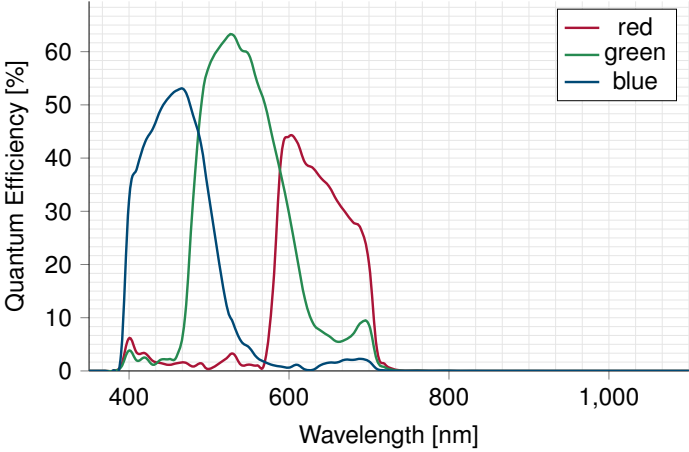
Monochrome with IR Cut Filter



Color

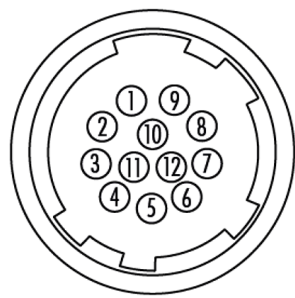


Color with IR Cut Filter



# GENERAL PURPOSE INPUT OUTPUT

## GPIO Pinout – 12 Pin Hirose Connector



1. DC Power return

2. DC Power

3. RS232 RX

4. RS232 TX

5. OUT2 Return

6. RS232 Return
7. OUT1 (TTL)

8. IN1 (OPTO)

9. IN2 (TTL/LVTTL)

10. IN1 Return

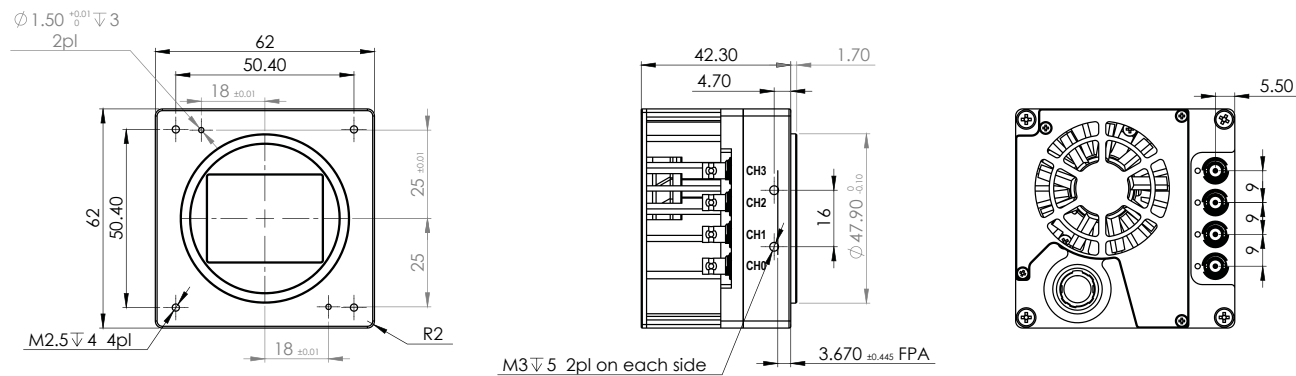
11. IN2/OUT1 Return

12. OUT2 (OPTO)

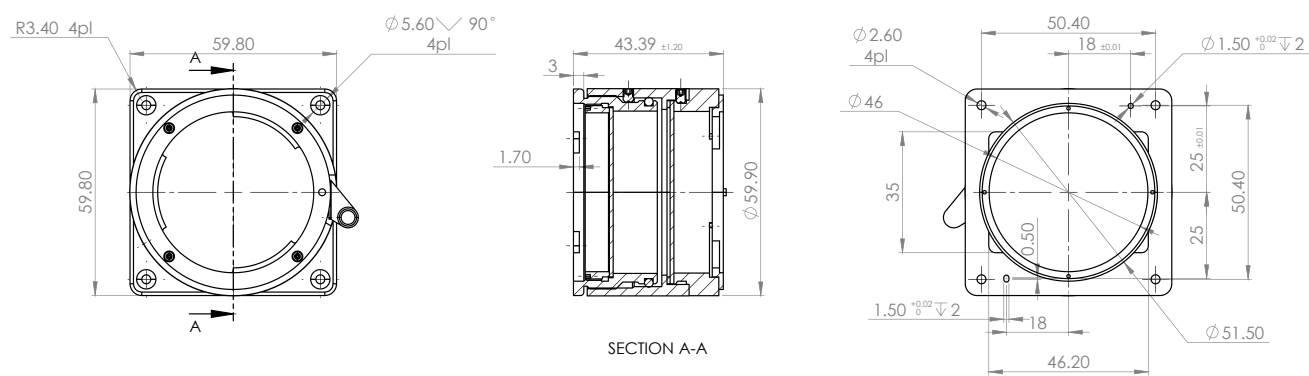
The GPIO connector used on the camera is a 12-pin male Hirose connector. It is recommended to use a cable with a matching Hirose 12 pin female connector. Hirose’s manufacturer’s part number is listed below:

Product Name	Product Part Number
Hirose 12P connector, male	HR10A-10R-12PB
Hirose 12P connector, female	HR10A-10P-12S

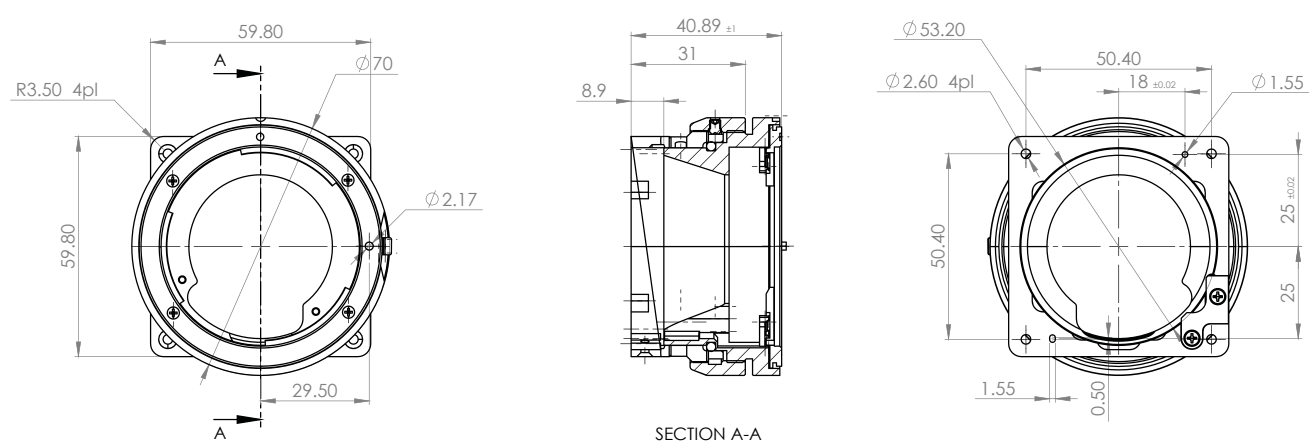
Camera Base



F-Mount Adapter

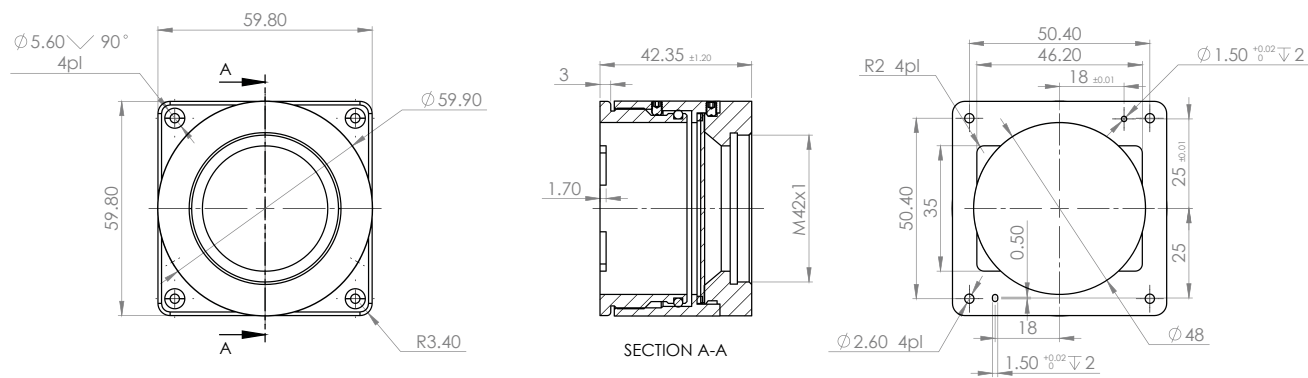


EF-Mount Adapter

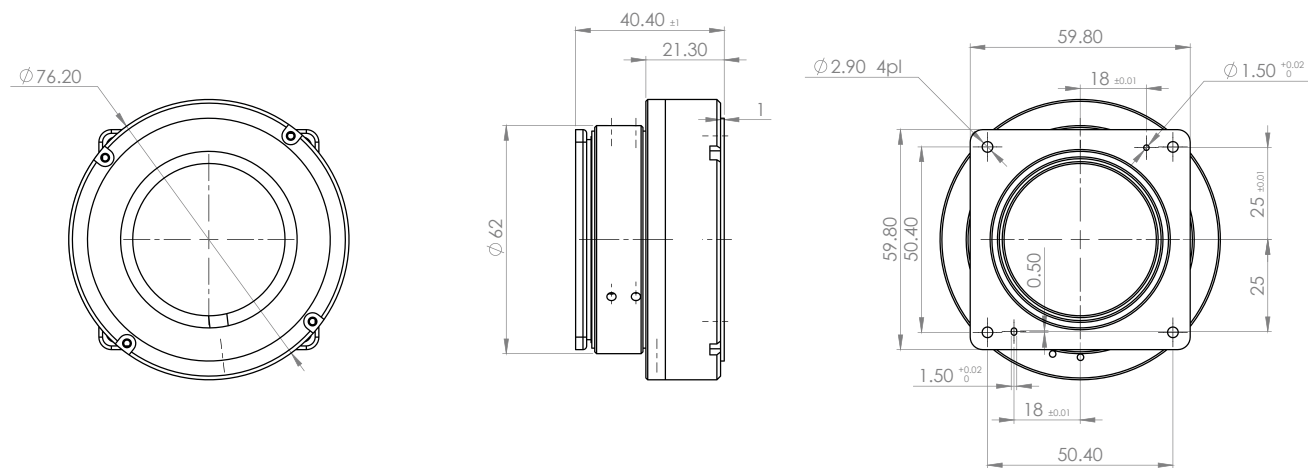




M42-Mount Adapter



Active EF-Mount Adapter



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.*

International Distributor



Sky Blue Microsystems GmbH  
Geisenhausenerstr. 18  
81379 Munich, Germany  
+49 89 780 2970, [info@skyblue.de](mailto:info@skyblue.de)  
[www.skyblue.de](http://www.skyblue.de)

## KAYA Instruments

Please feel free to contact our sales team for pricing, availability, documentation or customization at our e-mails – we will be happy to provide assistance and consultation.

Sales Inquiries: [info@skyblue.de](mailto:info@skyblue.de)  
Technical Support: [info@skyblue.de](mailto:info@skyblue.de)



© 2024 KAYA Instruments, Inc. All rights reserved. KAYA Instruments, the KAYA Instruments Komodo logo, JetCam logo, Predator, Iron and combinations thereof are trademarks of KAYA Instruments, Inc. in the United States and/or other jurisdictions. Microsoft Windows is a registered trademark of Microsoft Corporation. Other names are for informational purposes only and may be trademarks of their respective owners. KAYA Instruments is not liable for harm or damage incurred by information contained in this document.