

Datasheet Iron4600 CoaXPress

Iron4600 CoaXPress

45.4 Megapixel, Rolling shutter, Small, Rugged, Low Power with Large Feature Set

KAYA Instruments is a global leader in commercial, industrial and rugged cameras and imaging system solutions, providing high-performance products for over 15 years. Founded in 2008 by industry experts, KAYA designs, manufactures and supports both COTS and custom products for high-performance imaging needs.

KAYA cameras leverage cutting-edge technology to provide exceptional image quality in the smallest form factors. Our advanced camera lineup features built-in image pre-processing, enhancement, and correction, all while maintaining industry-leading power efficiency. Designed for reliability, our SWaP-C (Size, Weight, Power, and Cost) optimized cameras offer the highest durability, operating in extreme environments with the widest temperature ranges, superior shock and vibration resistance, and extended MTBF. KAYA cameras are the ultimate choice for high-performance imaging systems across commercial, industrial, medical, defense, aerospace, and scientific applications.

Key Features:

- 45.4 Megapixel up to 100.0 fps
- Monochrome and Color sensor variation
- Up to 11 W power at full rate
- Full image processing feature set
- CoaXPress v2.1 standard compliant
- Gen<i>i</i>Cam compliant
- Up to 4 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:

- Space
- Aerial Imaging
- Surveillance
- Sports & Broadcast
- Volumetric Capture
- Virtual Reality

TECHNICAL DATA

General	
Pixel Size	4.4 μm x 4.4 μm
Resolution	8320 (H) x 5456 (V)
Sensor Size	43.8 mm diagonal
Sensor Format	35 mm
Sensor	Gigapyx 4600
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	4
Output Resolution	8, 10, 12 or 14 bit
Maximum Frame Rate	<ul style="list-style-type: none">• 100 fps @8 bit resolution• 85 fps @10 bit resolution• 70 fps @12 bit resolution• 53 fps @14 bit resolution
Tap Geometry	1X-1Y
Image Acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic Shutter	Rolling
Monochrome / Color	Monochrome or Color
Temporal Noise	<1.6 e- at 25 °C
Full Well Charge	50000 e-
Dynamic Range	>90 dB at 520 nm
Signal-to-Noise Ratio (SNR max)	37 dB at 520 nm
Quantum Efficiency (QE)	>84% at 520 nm
Shortest Exposure	2.5 μs
IR Filter (optional)	<ul style="list-style-type: none">• UV cut below 400 nm• IR cut above 700 nm
Exposure control	Automatic/Manual
Gain control	Automatic/Manual
Color Control	<ul style="list-style-type: none">• RGB offsets• Auto / Manual White balance• LUT
Image enhancement	<ul style="list-style-type: none">• Defect pixel correction• Gain (Analog / Digital)• Auto / Manual black level• Binning• Auto Exposure / Gain• Flat field / Fixed pattern noise correction

Additional on camera processing	<ul style="list-style-type: none"> • ROI • Image flip • Frame counter • Operational Time Counter • Binning
Power Input	<ul style="list-style-type: none"> • PoCXP • External 10 V - 28 V input
Power Consumption	<11 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"> • 1 opto-isolated input • 1 opto-isolated output • 1 singled-ended TTL output • 1 singled-ended TTL/LVTTL input
Usage	<ul style="list-style-type: none"> • Any System I/O input lines can be connected to any I/O output line • Any I/O input line can generate any trigger event • Any I/O input line can trigger a timer • Any I/O input line can trigger a counter
Electrical specifications	<ul style="list-style-type: none"> • TTL lines: 5 V TTL compliant • LVTTL lines: 3.3 V LVTTL compliant • Isolated lines: opto-isolated lines with voltage range up to 30 V
Timers	<ul style="list-style-type: none"> • 4 general purpose timers • Configurable delay and duration • 32-bit accumulator
Counters	<ul style="list-style-type: none"> • 4 general purpose counters • Configurable value and duration • 32-bit counter

Mechanical	
Dimensions (including lens mount)	75 mm x 75 mm x 44.4 mm (3.0" x 3.0" 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 +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">• The European Council EMC Directive 2004/108/EC• The Unites States FCC rule 47 CFR 15
EMC - Emission	<ul style="list-style-type: none">• EN 55022:2010 Class B• FCC 47 Part 15 Class B
EMC - Immunity	<ul style="list-style-type: none">• EN 55024:2010 Class B• EN 61000-4-3• EN 61000-4-4• EN 61000-4-6
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

Iron4600M-SF

Color options

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

Grade

S – Commercial
R – Industrial

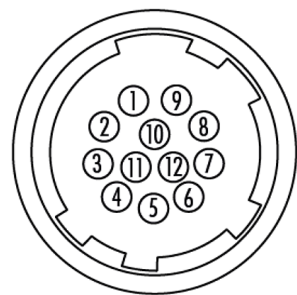
Lens mount

F – Nikon F-Mount
M – M42-Mount
E – Canon EOS-Mount
B – Active Canon Mount

Accessories	
Optional accessories	<ul style="list-style-type: none">• CoaXPress cables• KY-PWIO01 – Hirose to 2m bare wire
Accessories Included	-

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

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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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.

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