

## Datasheet Mercury SWIFT CoaXPress

### Mercury SWIFT CoaXPress

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

#### Innovative Approach

**Mercury SWIFT CoaXPress** is an ultra-thin high speed, low-cost, low-power Global shutter InGaAs camera with a Micro-BNC interface which supports 0.3 Megapixel high quality video at rates up to 1600.0 fps.

#### Intelligent Design

With an extremely compact form factor, the **Mercury SWIFT 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:

- 0.3 Megapixel up to 1600.0 fps
- Monochrome sensor variation
- Up to 4 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	10 µm x 10 µm
Resolution	640 (H) x 512 (V)
Sensor Size	8.2 mm diagonal
Sensor	SCD SWIFT event sensor
Sensor Type	InGaAs
Output Interface	CoaXPress v2.1
Supported Interface rates	CXP-12, CXP-6 or CXP-3
Interface Connector	Micro-BNC
Number of Connectors	1
Output Resolution	11 or 13 bit
Maximum Frame Rate	<ul style="list-style-type: none"> <li>• 1600 fps @11 bit resolution</li> <li>• 800 fps @13 bit resolution</li> </ul>
Tap Geometry	1X-1Y
Image Acquisition	Continuous / Triggered
Camera Control	Gen<i>Cam
Electronic Shutter	Global
Monochrome / Color	Monochrome
Temporal Noise	<50 e- at 25 °C
Full Well Charge	50000 e-
Dynamic Range	>86 dB at 1200 nm
Signal-to-Noise Ratio (SNR max)	46 dB at 1200 nm
Quantum Efficiency (QE)	>91% at 1200 nm
Shortest Exposure	2 µs
IR Filter (optional)	-
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 11 V - 28 V input</li> </ul>

Power Consumption	<4 W at 24 V DC
Configuration software	Gen<i>Cam Standard software
Synchronization	Protocol/External I/O Trigger
Exposure Strobe output	Yes

Event detection	
Max Event Rate	50Keps
Background rate	0.1 Hz @ 1Klux / 10Hz @ 5 lux
Output Resolution	2bit per event
Event detection Resolution	320 (H) x 256 (V)

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)	44 mm x 44 mm x 53 mm (1.7" x 1.7" x 2.1")
Weight (without lens)	100 g (3.5 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	According to customers requirements
Operational Vibration	According to customers requirements
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

# IronSWIFT<sup>TM</sup>-SC

Color options
M – Monochrome

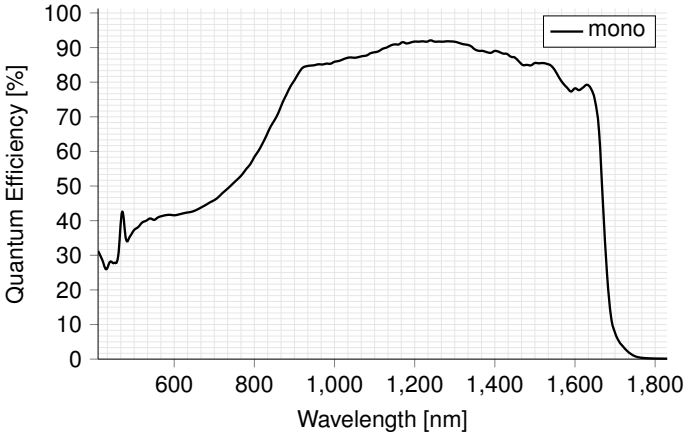
Grade
S – Commercial
R – Industrial

Lens mount
C – C-Mount



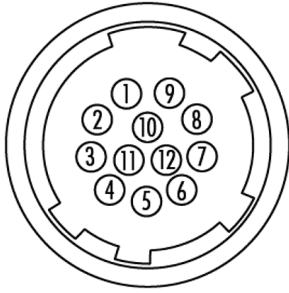
# SPECTRAL RESPONSE

## Monochrome



# GENERAL PURPOSE INPUT OUTPUT

## GPIO Pinout – 12 Pin Hirose Connector



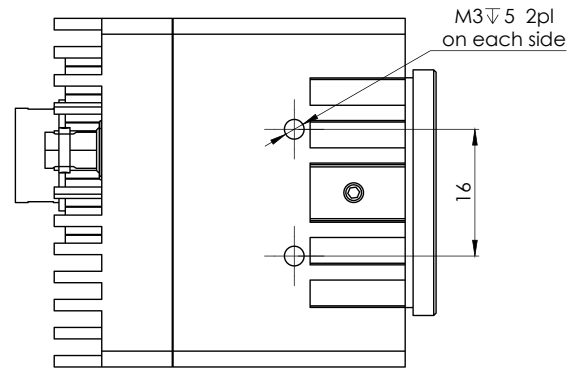
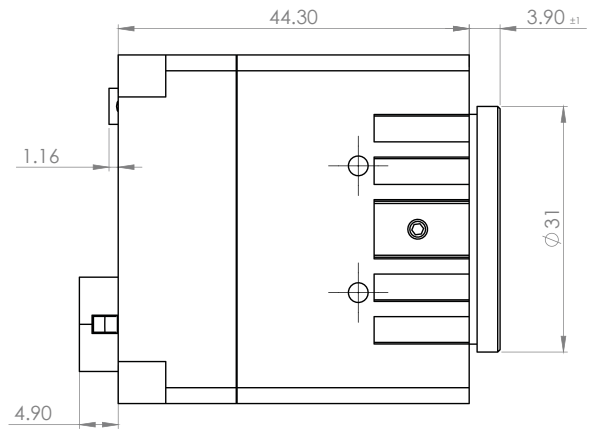
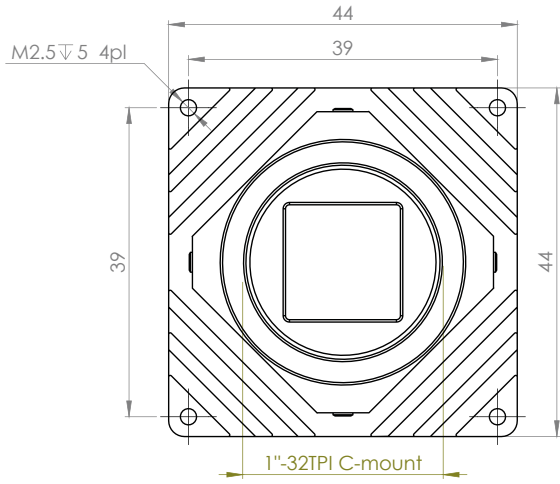
- |                    |                     |
|--------------------|---------------------|
| 1. DC Power return | 7. OUT1 (TTL)       |
| 2. DC Power        | 8. (IN1 OPTO)       |
| 3. RS232 RX        | 9. IN2 (TTL/LVTTL)  |
| 4. RS232 TX        | 10. IN1 Return      |
| 5. OUT2 Return     | 11. IN2/OUT1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