

## Datasheet Iron265 SDI

### Iron265 SDI

2k Resolution, Small, Rugged,  
Low Power with Large Feature Set

### Innovative Approach

**Iron265 SDI** is an ultra-thin high speed, low-cost, low-power Global shutter CMOS camera with a Micro-BNC interface which supports up to 2k resolution high quality video at rates up to 60.0 fps.

### Intelligent Design

With an extremely compact form factor, the **Iron265 SDI** 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:

- Up to 2k Resolution up to 60.0 fps
- Monochrome and Color sensor variation
- Up to 3.2 W power at full rate
- Full image processing feature set
- SDI standard compliant
- 1 SDI 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
- Tri-Level Sync Input
- TTL Strobe Output
- SMPTE Compliance – Several Standards listed

### Applications:

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

# TECHNICAL DATA

General	
Pixel Size	3.45 $\mu\text{m}$ x 3.45 $\mu\text{m}$
Resolution	2048 (H) x 1080 (V)
Sensor Size	8.0 mm diagonal
Sensor	Sony Pregius IMX265
Sensor Type	CMOS
Output Interface	SDI
Supported Interface rates	HD-SDI or 3G-SDI
Interface Connector	Micro-BNC
Number of Connectors	1
Output Format	10-bit 4:2:2(Y'Cb'Cr') / RAW (Bayer)
Maximum Frame Rate	60.0
Video output	2k, 1080p or 1080i
Image Acquisition	Continuous
Camera Control	RS232 direct ASCII protocol
Electronic Shutter	Global
Monochrome / Color	Monochrome or Color
Temporal Noise	<2.2 e- at 25°C
Full Well Charge	9828 e-
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><li>• Color Multi-Matrix correction</li><li>• Cross Color Correction</li><li>• Gamma</li><li>• High performance De-Bayering</li><li>• Saturation Control</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>• Knee Function</li><li>• Noise reduction</li><li>• Edge enhancement</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	Open Source GUI with a full feature set <a href="#">[link]</a>
Synchronization	Tri-Level Sync Input
Exposure Strobe output	Yes

Mechanical	
Dimensions (including lens mount)	44 mm x 44 mm x 35.3 mm (1.7" x 1.7" x 1.4")
Weight (without lens)	90 g (3.2 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

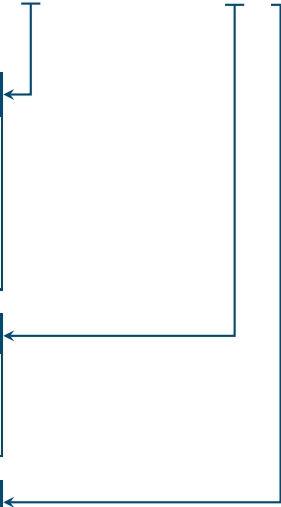
Must be disposed of separately from normal household waste and must be recycled according to local regulations

# Iron265M-SDI-SC

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

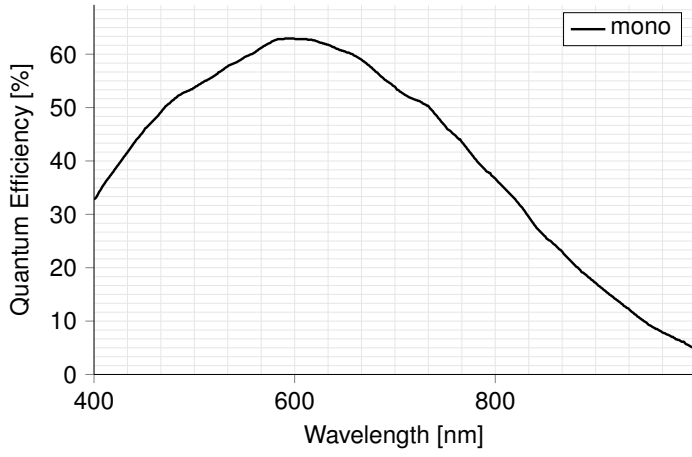
Grade
S – Commercial
R – Industrial

Lens mount
C – C-Mount

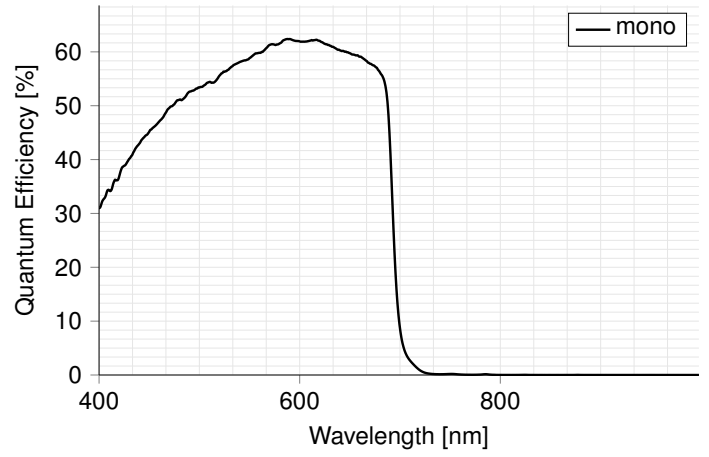


# SPECTRAL RESPONSE

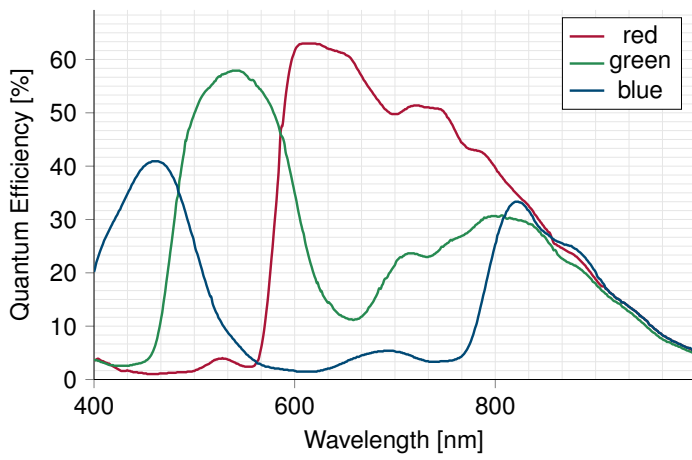
## Monochrome



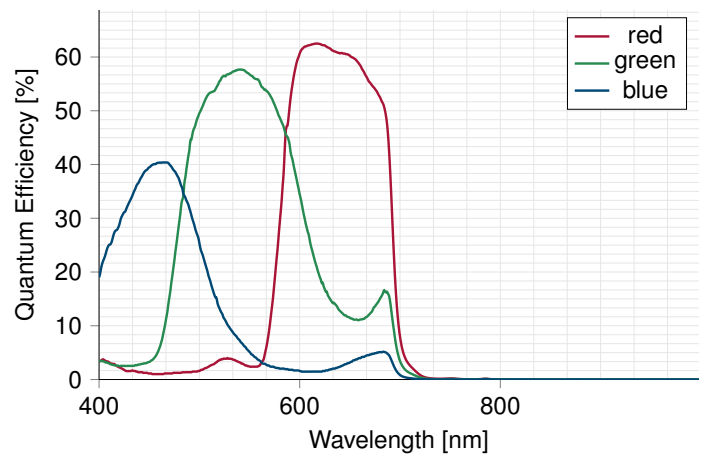
## Monochrome with IR Cut Filter



## Color

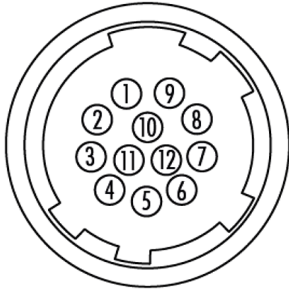


## Color with IR Cut Filter



# GENERAL PURPOSE INPUT OUTPUT

## GPIO Pinout – 12 Pin Hirose Connector



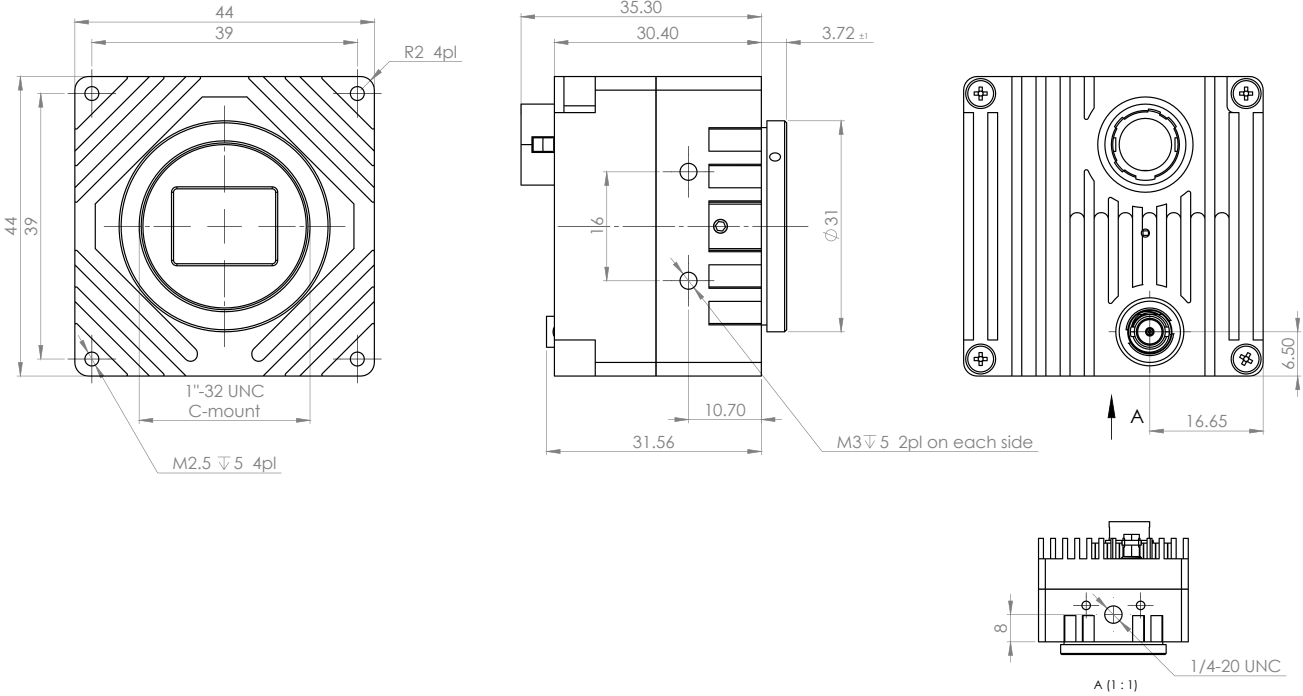
- |                    |                             |
|--------------------|-----------------------------|
| 1. DC Power return | 7. Strobe output (TTL)      |
| 2. DC Power        | 8. Tri-Level Sync input     |
| 3. RS232 RX        | 9. Reserved                 |
| 4. RS232 TX        | 10. Tri-Level/Strobe return |
| 5. Reserved        | 11. Reserved                |
| 6. RS232 Return    | 12. Reserved                |

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.



## SUPPORTED VIDEO MODES

Mode	Video Standard	Supported Resolution	Supported FPS
HS-SDI	ST 292(ST 274)	1080i 10-bit 4:2:2/RAW	50, 59.94, 60
	ST 292(ST 2048-2)	1080p 10-bit 4:2:2/RAW 2K 10-bit 4:2:2/RAW	23.98, 24, 25, 29.97, 30 23.98, 24, 25, 29.97, 30
3G-SDI	ST 425-1(ST 274)	1080p 10-bit 4:2:2/RAW	50, 59.94, 60
	ST 425-1(ST 2048-2)	2K 10-bit 4:2:2/RAW	47.95, 48, 50, 59.94, 60
6G-SDI	ST 2081-10 M1,(ST 2036-1)	UHD 10-bit 4:2:2/RAW	Not Supported
	ST 2081-10 M1, (ST 2048-1)	4K 10-bit 4:2:2/RAW	Not Supported
12G-SDI	ST 2082-10 M1, ST 425-5(ST 2036-1)	UHD 10-bit 4:2:2/RAW	Not Supported
	ST 2082-10 M1, ST 425-5(ST 2048-1)	4K 10-bit 4:2:2/RAW	Not Supported
Analog CVBS	PAL	720 x 576	Not Supported
Quad 6G-SDI	ST 2082-11 M,(ST 2036-1)	UHDTV2 10-bit 4:2:2/RAW	Not Supported
		8K 10-bit 4:2:2/RAW	Not Supported
Quad 12G-SDI	ST 2082-12 M1,(ST 2036-1)	UHDTV2 10-bit 4:2:2/RAW 8K 10-bit 4:2:2/RAW	Not Supported Not Supported

# 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)

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

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



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