

Iron 2020BSI SDI

Iron SDI Small Form Factor, Ruggedized Camera

Innovative Approach

The *Iron 2020BSI SDI* is an ultra-thin, low-cost, low-power rolling shutter CMOS camera with an SDI interface which supports high quality video at rates up to 60 fps.

Intelligent Design

The GSENSE2020BSI is a rolling shutter sensor with a 6.5µm pixel size. With a compact outline the *Iron* camera can be fitted into tight spaces. Superior sensor performance allows very low light vision capabilities.

Applications:

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

Key Features:

- Maximal frame rate of up to 60 fps
- Monochrome
- Up to 3.2W power at full rate
- Full image processing feature set
- Optional Pan/Tilt alignment of the sensor
- Up to 3G-SDI interface
- C mount / CS mount / EF or DC Auto Iris mount
- Full EMVA1288 report
- Full built-in self-test (BIT)
- Full built-in voltage testing
- Customization as per user requirements

Specifications

Feature	Description
Pixel Size	6.5 μm x 6.5 μm
Resolution	1920 (H) x 1080 (V)
Sensor size	13.3 mm x 13.3 mm 1.2"
Sensor	Gpixel GSENSE2020BSI
Video Output	2k, 1080p, 1080i up to 60 fps
Output Interface	Single-Link HD-SDI or 3D-SDI
Output Format	10-bit Mono
Interface Connector	Micro-BNC
Sensor Positioning	Full pan/tilt calibration for optical axes (optional)
Electronic Shutter	Rolling shutter with global reset
Shutter speed	4.62 μs resolution in 6.6 μs steps (up to 16 sec)
Exposure control	Off / Internal / Auto
Monochrome / Color	Monochrome
Temporal Noise	1.9 e^- or 1.4 e^- @25°C with reduced dynamic range
Full Well Charge	54 ke^-
Dynamic Range	88dB
Dark Current	42 e^- pxl/sec @ 21 °C
Signal-to-Noise Ratio (SNR max)	46 dB
Quantum Efficiency (QE) X FF	< 95% @550 nm
Exposure Control	Automatic Exposure/Gain, manual Exposure/Gain
Regulation	FCC Part 15 Class A, CE, RoHs2 (official certification optional)
Image Enhancement	<ul style="list-style-type: none"> ▪ Auto/Manual White balance ▪ LUT ▪ Defect pixel correction ▪ Auto/Manual black level ▪ Flat field / Fixed patter noise correction ▪ Operational Time Counter ▪ Image flip
Camera Configuration	RS232 direct ASCII protocol
Synchronization	Tri-level sync input

* KAYA Instruments reserves the right to update the data sheet from time to time without prior notice.

Mechanical & Electrical

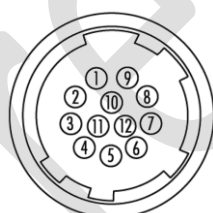
Feature	Description
Dimensions (including lens mount)	44 mm x 44 mm x 51.8 mm (Height x Width x Depth)
Lens Mount	C-mount, CS-mount, Active EF-mount or DC Auto Iris lenses
Weight (without lens)	~100g
Power Input	PoCXP full support (7-28V with external power option)
Power Consumption	<3.2W @ 12V DC
Operating Temperature	-40°C to 80°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)
Ingress Protection	Optional IP67 (with protective lens tube)
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
Sensor Mechanical Positioning	≤ 0.15°
Typical current	170mA @ 24V

Iron SDI Supported Video Modes

Mode	Video Standard	Supported Resolution	Supported FPS
HD-SDI	ST 292 (ST 274)	1080i 10-bit Mono	50, 59.94, 60
		1080p 10-bit Mono	23.98, 24, 25, 29.97, 30
3G-SDI	ST 292 (ST 2048-2)	2K 10-bit Mono	23.98, 24, 25, 29.97, 30
		1080p 10-bit Mono	50, 59.94, 60
	ST 425-1 (ST 2048-2)	2K 10-bit Mono	47.95, 48, 50, 59.94, 60
		1080p 10-bit Mono	50, 59.94, 60

General Purpose Input Output

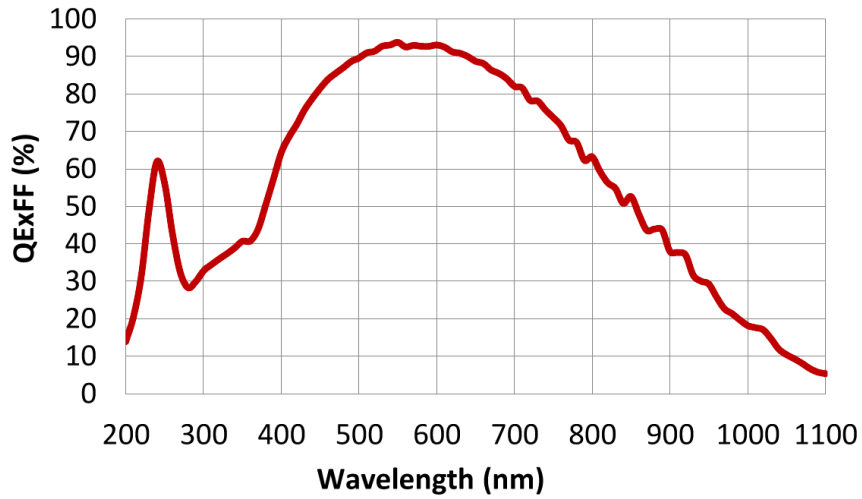
GPIO Pinout – 12 Pin Hirose Connector



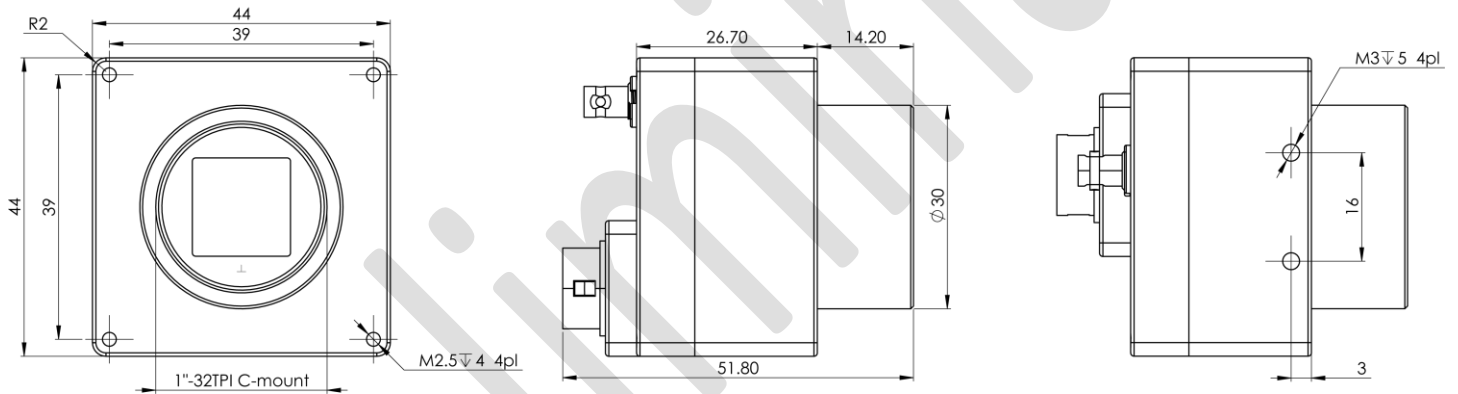
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|-----------------------|---------------------------|
| 1. DC Power return | 7. OUT1 (TTL) |
| 2. DC Power | 8. Tri Level Sync Input |
| 3. RS232 RX | 9. IN2 (LVTTTL) |
| 4. RS232 TX | 10. Tri Level Sync Return |
| 5. OUT2 Return (OPTO) | 11. IN2 Return (LVTTTL) |
| 6. RS232 Return | 12. OUT2 (OPTO) |

Absolute Quantum Efficiency

GSENSE2020BSI Spectral Response



Mechanical Drawings



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