(https://qsimaging.com)

(https://qsimaging.com/wp-content/uploads/2018/12/rs-slim-cap-hi-res.jpg)

QSI RS 2.0

QSI RS 2.0 2.0MP COOLED CCD CAMERA

Breakthrough QSI image quality for high speed applications!

The QSI *RS* 2.0 model camera employs a 2.0mp Kodak interline transfer CCD image sensor with microlens technology. The high quantum efficiency, wide dynamic range, dual read rates, low noise performance and internal 5 or 8-position color filter wheels make the QSI *RS* 2.0 ideally suited to a broad range of demanding scientific, life science, astronomical, and industrial imaging applications.

The *RS* 2.0 can be configured for applications from the visual band into the NIR from 350nm up to 1100nm. Electronic input and output triggers with latency as low as 5*µ*sec allow precise exposure timing and triggering of external events such as strobes. The *RS* 2.0 also supports Particle Image Velocimetry (PIV) exposure mode for flow visualization with two exposures as close together as 100*µ*sec.

Cooling on the *RS* Series is achieved with a custom 2-stage TEC supporting regulated **cooling to >45C below ambient**, or greater than 50C with the optional Liquid Heat Exchanger.

The *RS* 2.0 camera system is supported by industry leading image acquisition software plus a full camera control API is available for creating custom Windows or Linux applications.

See all camera specifications (https://qsimaging.com/specification-tables/)

€POA

Choose an option

High Performance CCD Image Sensor

Leading Edge Technical Performance

Refined Design

Efficient, Low Power CCD Sensor Cooling

Two Shutters and a Filter Wheel

Connectivity and Notification

Extensive Software Support

2 Megapixel CCD Image Sensor

The QSI RS 2.0 employs a Kodak KAI-2020M 2.0 megapixel interline transfer CCD image sensor with microlens technology. The KAI-2020M sensor has a photoactive array of 1600W x 1200H pixels. It has excellent quantum efficiency between 350nm and 1000nm with significant enhancement at the blue end of the spectrum. Low dark current and high pixel charge capacity result in a dynamic range exceeding 74db. The sensor employs a vertical overflow drain that provides both antiblooming protection and a fast electronic shutter. Micro lenses cover the surface of the CCD to focus the light into each pixel to increase optical response. See the Specifications tab below for additional details.

With the fast electronic shutter and 8MHz High Speed read mode, the QSI RS 2.0 can produce frame rates of up to 20 frames per second (fps) when reading a Region of Interest (ROI), or 9 fps for low resolution full-frame 16-bit images.

With the fast electronic shutter and 8MHz High Speed read mode, the QSI RS 2.0 can produce frame rates of up to 15 frames per second (fps) when reading a Region of Interest (ROI), or 6 fps for low resolution full-frame 16-bit images.

Model RS 2.0 CCD Image Sensor Specifications

Feature	Standard
CCD Manufacturer & Model	Kodak KAI-2020M
CCD Architecture	Interline Transfer
Microlens	Yes
Anti-blooming	Yes – 100x suppression
Imager Size: (WxH)	11.84mm x 8.88mm
Pixel Array (WxH):	1640×1214 total pixels, 1600×1200 active (visible)
Pixel Size:	7.4μm x 7.4μm
	Typical Values
Pixel Full Well Depth	40,000 electrons

Absolute Quantum Efficiency	Peak: 55% at 500nm
Pixel Dark Current	<0.1 electron per second at 0°C
Intrinsic Read Noise	<8 electrons RMS
Dynamic Range	74db
Charge Transfer Efficiency	>0.99999
(http://www.adobe.com/products/acrobat/readstep2.html)	**Manufacturer's CCD Imager Specifications**
	KAI-2020M/CM (PDF) (https://qsimaging.com/docs/KAI-2020LongSpec.pdf)

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Model RS 2.0 Camera Specifications

Feature	Model RS 2.0i	Model RS 2.0s	Model RS 2.0ws(-8)
CCD Image Sensor	**KAI-2020M**		
Electronic Shutter	100μsec to 240 minutes	100μsec to 240 minutes	100μsec to 240 minutes
Mechanical Shutter	No	Yes	Yes
Internal Color Filter Wheel	No	No	ws – 5-Position CFW ws-8 – 8-position CFW Holds 1.25″ or opt. 31mm filters
Camera Body Configuration	Slim Enclosure	Medium Enclosure	Full Enclosure
Dimensions	W4.45” x H4.45” x D1.68” (add 0.225″ for T-Mount)	W4.45” x H4.45” x D2.00” (add 0.225″ for T-Mount)	5-pos, W4.45” x H4.45” x D2.50” 8-pos, W5.86” x H5.56” x D2.50” (add 0.225″ for T-Mount)
Weight, without Nosepiece	26 oz. / 740g	34 oz. / 950g	5-pos, 40 oz. / 1130g 8-pos, 51 oz. / 1450g
Optical Back Focus (w/o Filters in path)	0.58″ w/ T-mount adapter 0.68″ w/ C-mount adapter 0.35″ w/ no adapter	0.90″ w/ T-mount adapter 0.68″ w/ C-mount adapter 0.68″ w/ no adapter	1.40″ w/ T-mount adapter 1.18″ w/ C-mount adapter 1.18″ w/ no adapter
Thermoelectric CCD Cooling	Temperature regulation +/- 0.1°C, @ 0°C to -40°C CCD temperature		
In free air, Fans @ Full Speed	Typically 45°C below ambient air with 85% cooling power		
With Opt Liquid Cooling – Fans Off	Typically 52°C below circulating liquid with 85% cooling power (adds 0.75″ to camera depth)		

Cooling Fan Control	Intelligent, user configurable		
Read Rate	User Selectable High Quality mode at 800KHz, High Speed mode at 8MHz		
Camera Gain	User Selectable High Gain 0.7 e-/ADU (default), Low Gain 1.5 e-/ADU		
Digital Resolution	16 bits (both High Quality and High Speed mode)		
Total System Read Noise	Typically <8 electrons RMS (CCD specification limited) in High Quality mode Typically <16 electrons RMS (CCD specification limited) in High Speed mode		
Pixel Dark Current	<0.1 electron per second at 0°C		
Full Image Read and Download Time	Typically <4 second (host computer dependent) in High Quality Mode (800KHz) Typically <0.3 second (host computer dependent) in High Speed Mode (8MHz) Image download times will be reduced with binning and/or subframe (ROI)		
Binning Modes	Symmetrical and Asymmetrical binning up to 9 pixels horizonally or vertically		
Status and Notification	User configurable multi-color LED status indicator and multifunction audible beeper. Over-temperature and high/low voltage alarms.		
Power Consumption	12v, 2A (24 watts) at max cooling, max fans and filter moving (25 AC watts max with included 90-240V AC power supply)		
Operating Environment	Temperature: -20°C to 30°C, Humidity: 10% to 90% non-condensing		
Computer Connectivity	USB 2.0 High Speed (USB 1.1 compatible)		
Other Ports	Optically isolated 4 channel control port with low latency input and output shutter triggers (*See API Reference Manual for details*)		
Lens Attachment	Standard – T-Thread, 42mm x .75mm pitch Supports Canon EOS and Nikon F-mount lenses		
C Mounting Adapter (1″ x 32TPI)	Optional, C-Mount (Type I) lens focus compatible (17.5mm backfocus)	Optional, C-Mount (Type II) lens focus compatible (17.5mm backfocus)	Optional, for non-lens adapters and accessories (standard C-Mount lens does not reach focus at infinity)
Nosepiece	Standard, T-Adapter to 2″ nosepiece Optional, T-Adapter to 1.25″ nosepiece		

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