

MicroLine ML4022

Quality. Cooled. Cameras.

2048 x 2048 Imaging Array

7.4 μm Pixel Size

High quantum efficiency and exceptionally low read noise give the ML4022 sensitivity down to microlux from visible to the near infrared. High spatial resolution makes the ML4022 ideal for low light applications such as fluorescence.

Standard configuration: single channel with software-selectable download speeds: 1.5 MHz for exceptionally low noise, and 12 MHz (about 2 frames per second).

Optional configuration: 2 channels at 12 MHz each (about 4 frames per second)

Air cooling to 60°C below ambient. Optional liquid circulation for cooling to 80°C below ambient.

Standard C-mount thread or optional FLI dovetail for use with a variety of adapters, such as Nikon F-mount or Canon EOS.



Shown with C-mount; other mounts available

Applications

Digital Radiography

Astronomy

Bioluminescence

Chemiluminescence

Gel Documentation

Forensic Imaging

Satellite Imaging

Low Light Level Imaging

Features

Benefits

Software selectable 1.5 and 12 MHz digitization

Fast Image capture with full 16-bit resolution

2048 x 2048 Array with 7.4 μm pixels

Resolves fine detail

Flexible binning and readout

Increases frame rate

Thermoelectric Cooling to 55°C Below Ambient

Excellent low-noise imaging

Excellent quantum efficiency

High sensitivity for fast image acquisition

C-mount; optional Nikon F-mount or Canon EOS mount

Wide variety of optical choices

Acquisition software included

Ease of integration with open source SDK

USB 2.0 interface

Industry standard connectivity; fast data transfer



Engineering Excellence

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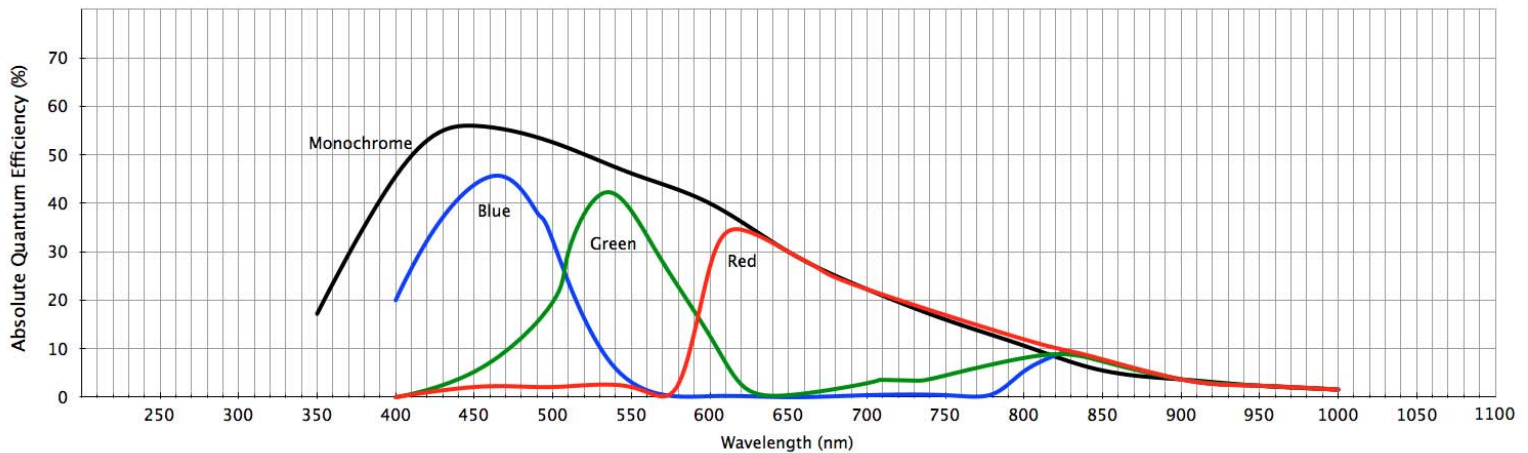
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*Due to continuous development, all specifications subject to change without notice.

Sensor Specifications (from manufacturer)

Sensor	On Semi KAI-4022	Sensor Size	15.1 X 15.1 mm	Megapixels	4.2
Pixels	2048 x 2048	Sensor Diagonal	21.3 mm	Video Size (inch)	1.3
Pixel Size	7.4 μ m	CCD Variants	Optional non-microlensed		
Full Well Capacity	40000 electrons	CCD Grades	Standard		
Color Options	Mono or Color	Anti-Blooming	300X		
CCD Type	Interline transfer				

Sensor Quantum Efficiency (Absolute)



Camera Performance

Typical Maximum Cooling	55°C below ambient	Dark Current (typical)	0.0004 electrons/pixel/sec at -35°C
Temperature Stability	0.1°C	Cooling Method	-40°C with air cooling (-60°C with liquid cooling) when room
Digitization Speed	1.5 MHz and 12 MHz		
Typical System Noise	4-5e- @ 1.5 MHz; 10-11e- @ 12 MHz	Non-Linearity	<1%
Focal Plane to Face Plate	15.7 mm optical; 17.5 mm at C-mount	Weight	2.8 lbs (1.2 kg)
Typical Gain		Housing	3.7 X 3.7 X 4.77 inches (9.3 X 9.3 X 12.1 cm)
Lens Mounts	C-mount; optional Nikon F-mount or Canon EOS mount		
Interface	USB 2.0	Camera Channels	1000000
Available Shutters	Sensor has electronic shutter; optional 45 mm		
External Triggering	Standard		
Environment	-30°C to 45°C 10% - 90% Relative Humidity		
Power	12V (100-240V AC to 12V DC power supply included). With TEC off: <1A. TEC at 100%: 4.4A. Shutter open: 4A pulse for 100msec. Shutter held open, add 0.22A.		



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