

Dhyana 4040 V2 / 4040BSI

The Dhyana 4040 V2 / 4040BSI brings the speed and dynamic range to large format imaging missing from previous CCD technology.^[1] With a 52 mm diameter, high quantum efficiency and 9 μm pixels size, it is well suited to scientific applications in areas such as Astronomy and Physics.



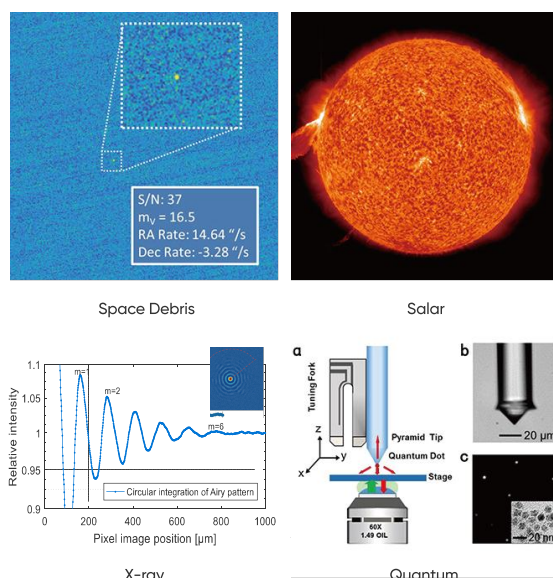
Key Features	4040 V2	4040BSI	Benefits
Field of View	36.9 mm x 36.9 mm	36.9 mm x 36.9 mm	Large field of view from 16 MP, 9 μm pixel size sensor.
Quantum Efficiency	74% QE	90% QE	High photon collection efficiency for lower illumination intensity.
Frame Rate	16.5 fps	16.5 fps	Faster data rates than the previous CCD technology.
Full-well Capacity	70 Ke-	39 Ke-	High dynamic range for the measurement of bright and dim signals at the same time.
Cooling Method	Air & Liquid	Air & Liquid	Maintains low dark noise, minimizes vibration, and aids thermal stability.

Typical Applications

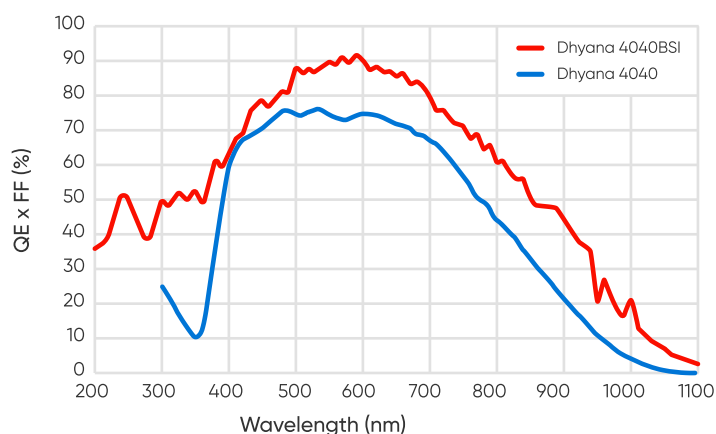
- Space Debris Detection
- Solar Astronomy
- X-ray Detection
- Quantum Optics

Noted Examples

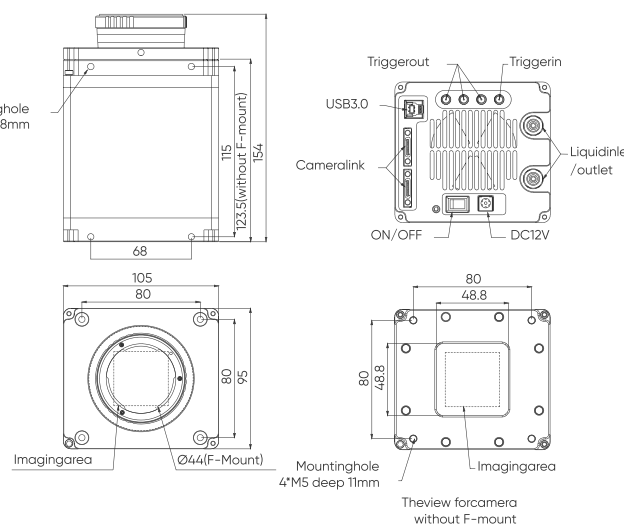
[1] Large-area sCMOS technology can be used in a wide range of applications previously limited by CCD technology.



Quantum Efficiency



Dimensions (Unit: mm)



Specifications

Model	Dhyana 4040 V2		Dhyana 4040BSI
Sensor Type	FSI sCMOS		BSI sCMOS
Sensor Model	Gpixel GSENSE4040		Gpixel GSENSE4040BSI
Peak QE	74%@600 nm		90%@550 nm
Chrome	Mono		
Array Diagonal	52.1 mm		
Effective Area	36.9 mm x 36.9 mm		
Resolution	4096 (H) x 4096 (V)		
Pixel Size	9 μm x 9 μm		
Full Well Capacity	Typical: 70 Ke-		Typical: 39 Ke-
Dynamic Range	Typical: 86 dB		Typical: 85 dB
Frame Rate	16.5 fps@CameraLink, 9.7 fps@USB 3.0		
Readout Noise	Typical: 3.6 e-		Typical: 2.3 e-
Shutter Mode	Rolling		
Exposure Time	10 μs ~3600 s		
DSNU	0.5 e-		
PRNU	0.2%		
Cooling Method	Air Cooling, Liquid Cooling		
Cooling Temp.	45°C below ambient (Liquid cooling)		
Dark Current	Air: 0.15 e-/pixel/s, Liquid: 0.1 e-/pixel/s		1.2 e-/pixel/s
Binning	2 x 2, 4 x 4		
ROI	Support		
Timestamp Acc.	1 μs		
GPS	8 ns		
Trigger Mode	Hardware, Software		
Trigger Output	Exposure Start, Global Exposure, Readout End, High, Low		
Trigger Interface	SMA, CameraLink CC1		
Data Interface	USB 3.0, CameraLink		
Bit Depth	12 bit, 16 bit		
Optical Interface	F-Mount / User Customization		
Power Supply	12 V / 8 A		
Power Cons.	< 45 W		
Dimensions	105 mm (H) x 95 mm (W) x 123.5 mm (L)		
Weight	2 kg		
Software	Mosaic 3.0, Sample Pro, MAXIMDL, LabVIEW, MATLAB		
SDK	C / C++ / C# / Python		
Operating System	Windows, Linux		
Environment	Working: Temp. -25°C~40°C, HUM 0%~95%; Storage: Temp. -35°C~60°C, HUM 0%~95%		

*Specifications in this manual are subject to changes without prior notice.



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