Dhyana 400D Cooled FSI sCMOS Camera, 2048 × 2048, 72% QE, USB 3.0

Model Dhyana 400D · waveqvanta.com/products/dhyana-400d-scmos-camera

A cooled monochrome sCMOS camera for routine fluorescence and luminescence imaging over USB 3.0.



The Dhyana 400D is an air-cooled, front-illuminated monochrome sCMOS camera built on the GSENSE2020 sensor, with 2048 × 2048 pixels of 6.5 µm. It pairs 72% peak QE with 2.1 e^- read noise in high-gain mode, and cooling to 35 °C below ambient holds dark current at 0.12 e^-/pixel/s at −10 °C. It covers most fluorescence imaging tasks as well as bioluminescence and chemiluminescence work.

Key features

- 72% peak QE at 595 nm and 2.1 e^- read noise (high gain)
- Air cooling to 35 °C below ambient; dark current 0.12 e^-/pixel/s at −10 °C, reducing hot pixels in long exposures
- 6.5 µm pixels match the sampling needs of high-NA 40×, 60× and 100× microscope objectives
- 45 ke^- typical full well and 86.6 dB dynamic range
- 35 fps at 16 bit over USB 3.0, with hardware 2 × 2 binning and ROI
- SMA trigger I/O; supported in LabVIEW, MATLAB and Micro-Manager 2.0

Specifications

Sensor Type	FSI sCMOS
Sensor	GSENSE2020
Color / Mono	Mono
Peak QE	72% @ 595 nm
Resolution	2048 × 2048
Pixel Size	6.5 µm × 6.5 µm
Effective Area	13.3 mm × 13.3 mm
Array Diagonal	18.8 mm
Full-Well Capacity	45 ke^- (typical)
Readout Noise	2.1 e^- (high gain)
Dynamic Range	86.6 dB (typical)
Frame Rate	35 fps @ 16 bit
Shutter Type	Rolling
Exposure Time	13 µs – 10 s
Binning	2 × 2
ROI	Supported
Cooling Method	Air
Cooling Temperature	35 °C below ambient
Dark Current	0.12 e^-/pixel/s @ −10 °C
Bit Depth	12 bit, 16 bit
Data Interface	USB 3.0
Trigger	Hardware, software; SMA connectors

Trigger Output	Exposure Start, Global Exposure, Readout End
Optical Interface	C-mount
Power Supply	12 V / 8 A
Power Consumption	60 W
Dimensions	120 mm × 119 mm × 121 mm (H × W × L)
Weight	1853 g
Operating Environment	Working 0–40 °C, 10–85% RH
Operating System	Windows, Linux
Software / SDK Support	Acquisition and analysis software, LabVIEW, MATLAB, Micro-Manager 2.0; C/C++/C#/Python SDK

Typical applications

- Cell and tissue fluorescence imaging (bone, kidney, brain)
- Digital PCR (dPCR) readout
- Bioluminescence imaging
- Chemiluminescence imaging
- General fluorescence microscopy