Dhyana 401D Compact FSI sCMOS Camera, 2048 × 2048, 6.5 µm Pixels, USB 3.0

Model Dhyana 401D · waveqvanta.com/products/dhyana-401d-scmos-camera

A compact sCMOS camera with an 18.8 mm sensor, designed to be built into instruments at a controlled cost.



The Dhyana 401D is a compact front-illuminated sCMOS camera for instrument makers who want sCMOS image quality without a large housing or high component cost. Its GSENSE2020 sensor gives 2048 × 2048 pixels of 6.5 µm on an 18.8 mm diagonal, with 72% peak QE and 2.1 e^- median read noise. The camera body measures 56 × 56 × 61.7 mm, weighs 305 g and draws less than 4 W.

Key features

- 72% peak QE at 595 nm with hardware 2 × 2 binning for low-light imaging
- 2.1 e^- median read noise and 43 ke^- typical full-well capacity
- 40 fps at 16 bit or 45 fps at 8 bit at the full 2048 × 2048 resolution
- 56 mm × 56 mm × 61.7 mm body, 305 g, power consumption below 4 W
- USB 3.0 data interface, C-mount, Hirose trigger connector with exposure-start, readout-end and trigger-ready outputs
- Supported in LabVIEW, MATLAB and Micro-Manager 2.0, with SDKs for C, C++, C# and Python

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	43 ke^- (typical)
Readout Noise	2.1 e^- median (typical)
Frame Rate	40 fps @ 16 bit; 45 fps @ 8 bit
Shutter Type	Rolling
Exposure Time	10 µs – 10 s
Binning	2 × 2, 4 × 4
ROI	Supported
Bit Depth	8 bit, 12 bit, 16 bit
Data Interface	USB 3.0
Trigger	Hardware, software; Hirose connector
Trigger Output	Exposure Start, Readout End, Trigger Ready
Optical Interface	C-mount
Power Consumption	Below 4 W
Dimensions	56 mm × 56 mm × 61.7 mm (H × W × L)

Weight	305 g
Operating Environment	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

- OEM instrument integration
- Laser spot and beam analysis
- Diffractive phase imaging of blood cells
- Tumor DOT detection
- General low-light imaging