

TUCSEN

Dhyana Series sCMOS scientific camera

1-1100nm

X-ray~EUV~Visible~NIR

~100%QE

Peak QE

1-5.4"

Sensor area

6.5-11 μ m

Pixel size



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Dhyana 401D/201D

Industrial size sCMOS Camera

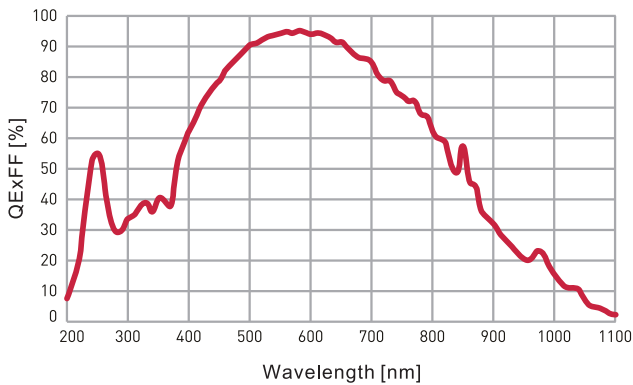
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BSI Ultra-large Area Array sCMOS Cooled Camera

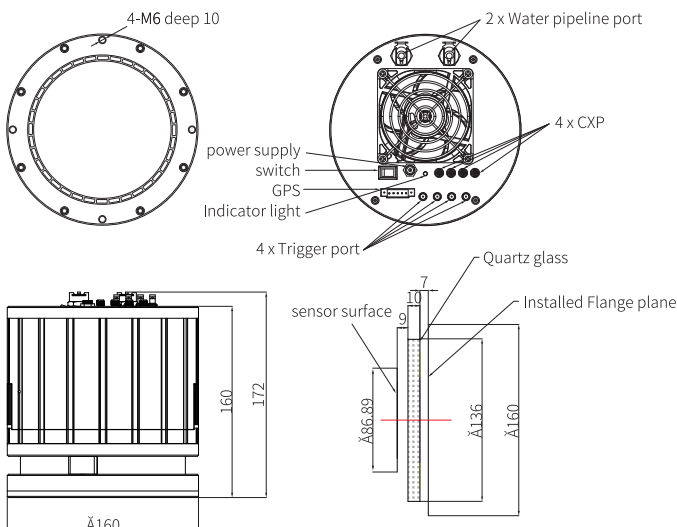


Key Features

- 5.4" large area array
- 10µm x 10µm pixel size
- 95%QE@580nm
- 102ke- full well capacity
- 26.4@fps full resolution
- CXP high-speed interface



Product structure (unit: mm)



Specifications

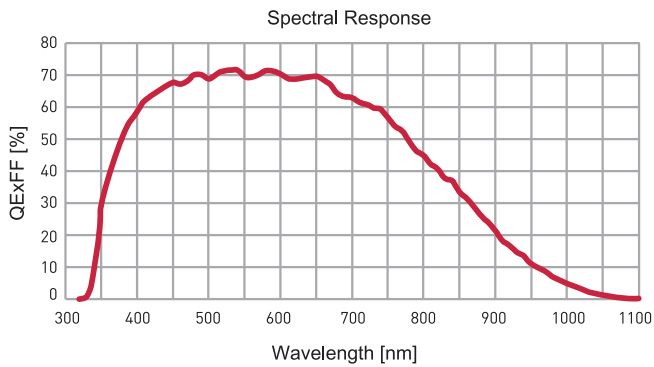
Model	Dhyana 6060BSI
Sensor size	5.4 inch
Sensor model	BSI sCMOS
Color/monochrome	Mono
Quantum efficiency	95% @ 580nm
Effective no. of pixels	6144(H) x 6144(V)
Pixel size	10µm x 10µm
Effective area	61.44 mm x 61.44 mm
Full well capacity	102ke-
Frame rate	26.4 fps (12bit STD) ; 11.3 fps (12bit HDR) ; 8.6 fps (14bit STD)
Readout noise	4.6e-
Shutter type	Rolling
Exposure time	12µs - 300s
Bit depth	16bit / 14bit / 12bit
Dynamic Range	90 dB
Cooling method	Forced air / Water
Dark current	0.1e-/s/pix@-20°C (ambient at +20°C)
Binning	2x2, 4x4
Sub-array	Support
GPS	Support, Precision <20us
Anti-Dew	Support
External trigger mode	Hardware: Standard; Software
Trigger delay function	0-10s (1µs steps)
Signal output ports	Exposure / Global / Readout / High level / Low level
External trigger routing	SMA
Digital interface	CoaXPRESS2.0 (CXP-12)
SDK	Support
Optional Mounts	Frame lens port for standard. Customized can be offered
Power supply	12V/8A
Power consumption	< 80W
Camera size	φ160mm(Diameter) x164mm(length)
Camera weight	≤ 4kg
PC software	Samplepro, MaximDL, Labview
Compatible system	Windows / Linux

FSI Ultra-large Area Array sCMOS Cooled Camera

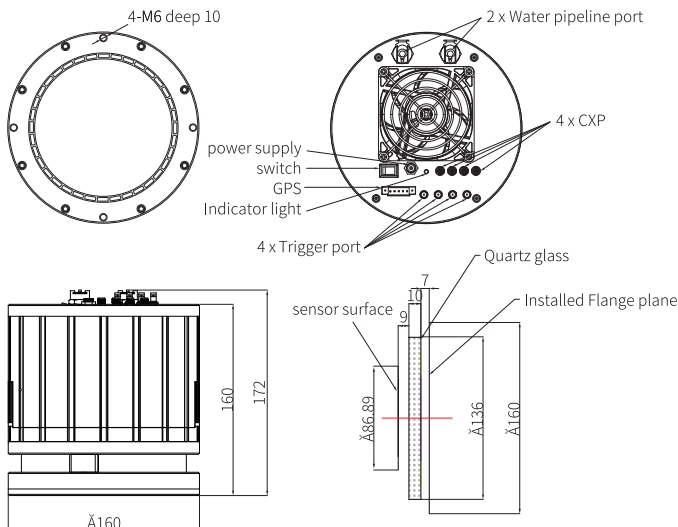


Key Features

- 5.4" large area array
- 75%QE@550nm
- 44fps@full resolution
- 10µm x 10µm pixel size
- 135ke- full well capacity
- CXP high-speed interface



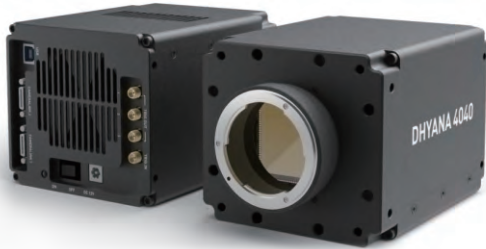
Product structure (unit: mm)



Specifications

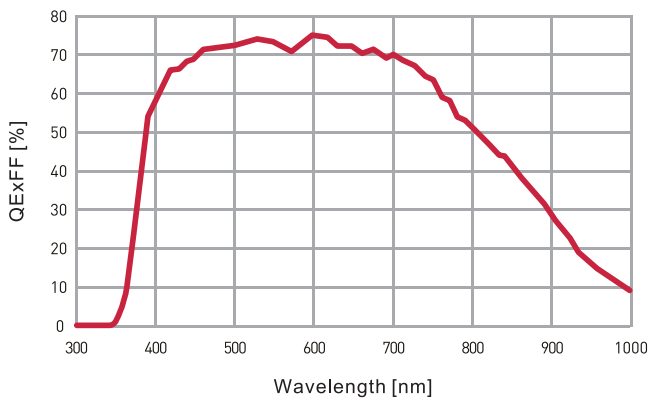
Model	Dhyana 6060
Sensor size	5.4 inch
Sensor model	FSI sCMOS
Color/monochrome	Mono
Quantum efficiency	72% @ 550nm
Effective no. of pixels	6144(H) x 6144(V)
Pixel size	10µm x 10µm
Effective area	61.44 mm x 61.44 mm
Full well capacity	135ke-
Frame rate	44 fps (12bit STD) ; 19 fps (16bit HDR) ; 14 fps (14bit STD)
Readout noise	3 e-
Shutter type	Rolling
Exposure time	7µs-300s
Bit depth	16bit / 14bit / 12bit
Dynamic Range	90 dB
Cooling method	Forced air / Water
Dark current	0.1e-/s/pix@-20°C (ambient at +20°C)
Binning	2x2, 4x4
Sub-array	Support
GPS	Support, Precision <20µs
Anti-Dew	Support
External trigger mode	Hardware; Software
Trigger delay function	0-10s (1µs steps)
Signal output ports	Exposure / Global / Readout / High level / Low level
External trigger routing	SMA
Digital interface	CoaXPress2.0 (CXP-12)
SDK	Support
Optional Mounts	Frame lens port for optional. Customized can be offered
Power supply	12V/8A
Power consumption	<80W
Camera size	φ160(Diameter) x 164mm(length)
Camera weight	≤ 4kg
PC software	Samplepro、MaximDL、Labview
Compatible system	Windows / Linux

FSI Ultra-large Area Array sCMOS Cooled Camera

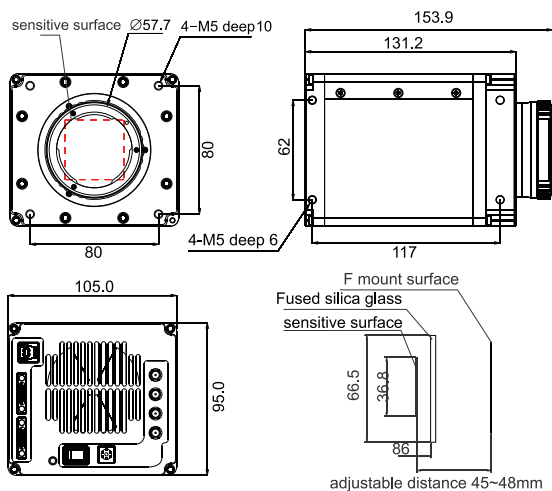


Key Features

- 3.2" large area array
- 9µm x 9µm pixel size
- 70ke- full well capacity
- 4096 x 4096 resolution
- Long exposure time supported
- Excellent cooling performance



Product structure (unit: mm)



Specifications

Model	Dhyana 4040
Sensor model	G4040FSI (FSI sCMOS)
Chip size	3.2 inch
Color/monochrome	Mono
Quantum efficiency	74%@600nm
Effective no. Of pixels	4096(H) x 4096(V)
Pixel size	9µm x 9µm
Effective area	36.9mm x 36.9mm
Full well capacity	70000e-
Frame rate	Full resolution: 20fps@CameraLink ; 10fps@USB3.0
Readout noise	HDR: 3.6e-(Median)
Shutter type	Rolling shutter
Exposure time	10µs-300s
Bit depth	16bit
Dynamic range	86dB
Cooling method	Forced air
Dark current	0.05e-/s/pix@-20°C (ambient at +20°C)
PRNU/DSNU	PRNU 0.2%, DSNU 0.5e-
Binning	2x2/4x4
Sub-array	Support
Anti-Dew	Support
External trigger mode	Hardware: Standard; Software
Trigger delay function	0-10s(1µs steps)
Signal output ports	Exposure / Global / Readout / High level / Low level
External trigger routing	SMA
Digital interface	USB3.0 / CameraLink
SDK	Support
Optional Mounts	F-mount
Power supply	12V / 8A
Power consumption	60W
Camera size	95mm x 105mm x 153.9mm
Camera weight	1800g
PC software	Mosaic 1.6/Samplepro/MAXIMDL/Labview/Matlab
Compatible system	Windows

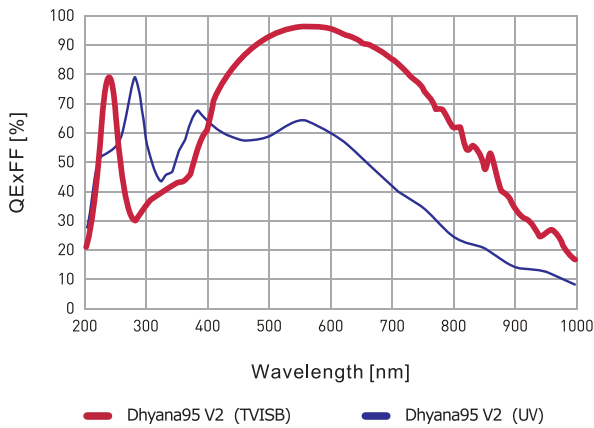
Dhyana95 V2

BSI sCMOS Cooled Camera

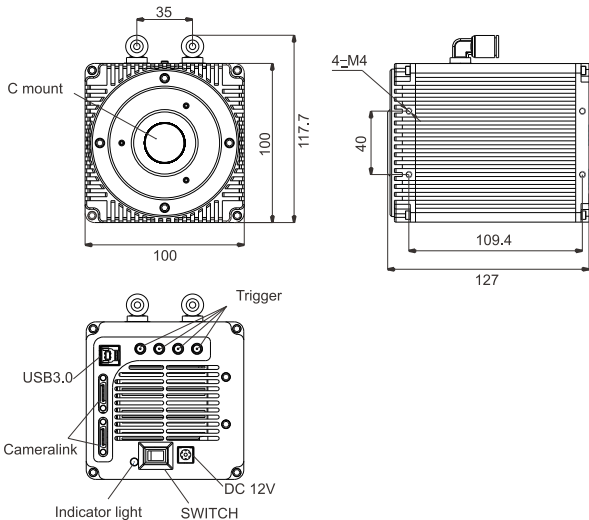


Key Features

- 2" area array
- 11µm x 11µm pixel size
- 95%QE@560nm
- 100ke- full well capacity
- 48fps@full resolution
- USB3.0 / CameraLink interface



Product structure (unit: mm)



Specifications

Model	Dhyana95 V2
Sensor size	2"
Sensor model	G400BSI(BSI sCMOS)
Color/Monochrome	Monochrome
Quantum efficiency	95%@560nm
Effective no. of pixels	2048(H) x 2048(V)
Pixel size	11µm x 11µm
Effective area	22.5mmx22.5mm
Full well capacity	HDR: 80000e-; STD: 100000e-
Frame rate	24fps@16bit HDR, 48fps@12bit STD
Readout noise	HighGain: 1.6e-(Median)/1.7e-(RMS)
Shutter type	Rolling
Exposure time	21us-10s
DSNU	0.2e-
PRNU	0.3%
Offset	100 (HDR and STD)
Cooling method	Forced air(Ambient at +20°C):-15°C, Water:-25°C@20°C
Dark current	Forced air: 0.5e-/pixel/s, Water: 0.25e-/pixel/s
Binning	1x1, 2x2, 4x4
Sub-array	2048x1024, 2048x512,1608x1608, 1200x1200, 1024x1024, 512x512, 256x256
External trigger mode	Hardware: Standard/Synchronous/Global trigger; Software
Trigger delay function	0-10s(1µs steps)
Signal output ports	Exposure / Global / Readout / High level / Low level
External trigger routing	SMA
Timestamp accuracy	1us
Digital interface	USB3.0/Cameralink
SDK	C / C++
Bit depth	16bit & 12bit
Optional Mounts	C-mount & F-mount
Power supply	12V/8A
Power consumption	60W
Camera size	C-mount 100mmx118mmx127mm F-mount 100mmx118mmx157mm
Camera weight	1613g
PC software	Mosaic / LabVIEW / Matlab / Micromanager / MetaMorph
Compatible system	Windows/Linux
Operating environment	0-40°C,10%-85% RH

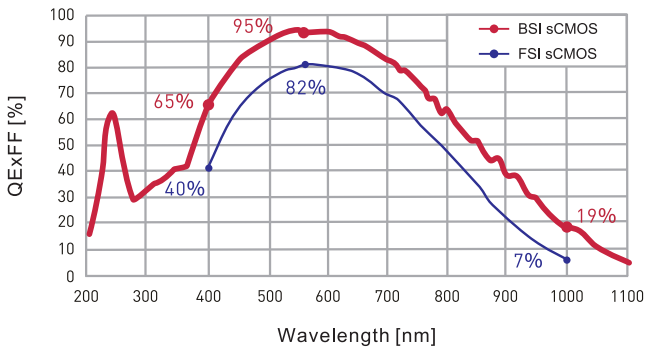
Dhyana 400BSI V2

BSI sCMOS Cooled Camera

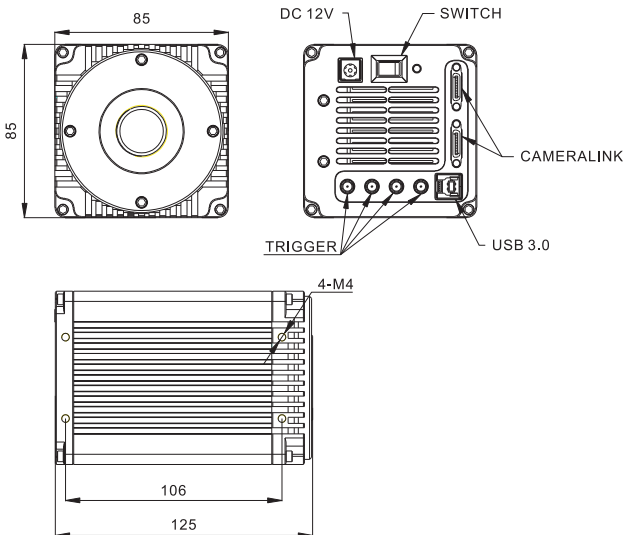


Key Features

- 1.2" area array
- 6.5µm x 6.5µm pixel size
- 95%QE@560nm
- 45ke- full well capacity
- 74fps@full resolution
- USB3.0 / CameraLink interface



Product structure (unit: mm)



Specifications

Model	Dhyana 400BSI V2
Sensor size	1.2"
Sensor model	G2020BSI (BSI sCMOS)
Color/monochrome	Mono
Quantum efficiency	53%@254nm, 95%@550nm, 48%@850nm
Effective no. of pixels	2048(H) x 2048(V)
Pixel size	6.5µm x 6.5µm
Effective area	13.3mm x 13.3mm
Full well capacity	HDR: 45000e-
Frame rate (full resolution)	74fps@CameraLink ; 40fps@USB3.0
Readout noise	CMS: 1.1e-(Median) / 1.2e-(RMS)
Shutter type	Rolling shutter/Global reset
Exposure time	6.6µs-10s (Manual/Auto)
DSNU	0.2e-
PRNU	0.3%
Cooling temperature	Forced air(Ambient at +20°C):-15°C, Water:-25°C@20°C
Dark current	Forced air: 0.15 e-/p/s (-15°C)(typ.), Water: 0.10 e-/p/s (-25°C)(typ.)
Binning	1x1, 2x2, 4x4
Sub-array	Support
External trigger mode	Hardware: Standard/Synchronous/Global trigger; Software
Trigger delay function	0-10s(1µs steps)
Signal output ports	Exposure / Global / Readout / High level / Low level
External trigger routing	SMA
Digital interface	USB3.0 / CameraLink
SDK	Support
Bit depth	16bit
Optional Mounts	C-mount
Power supply	12V/8A
Power consumption	60W
Camera size	85mm x 85mm x 125mm
Weight	1460g
PC software	Mosaic / LabVIEW / Matlab / Micromanager / MetaMorph
Compatible system	Windows / Linux
Operating environment	0-40°C, 10%-85% RH

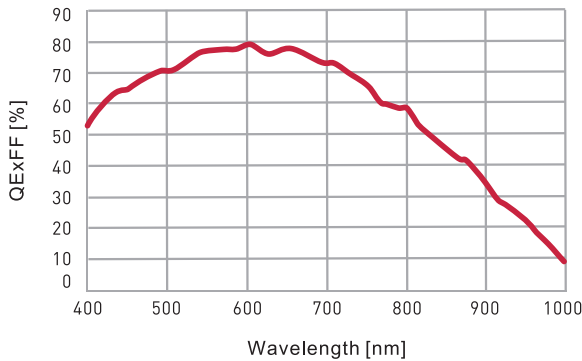
Dhyana 400D

FSI sCMOS Cooled Camera

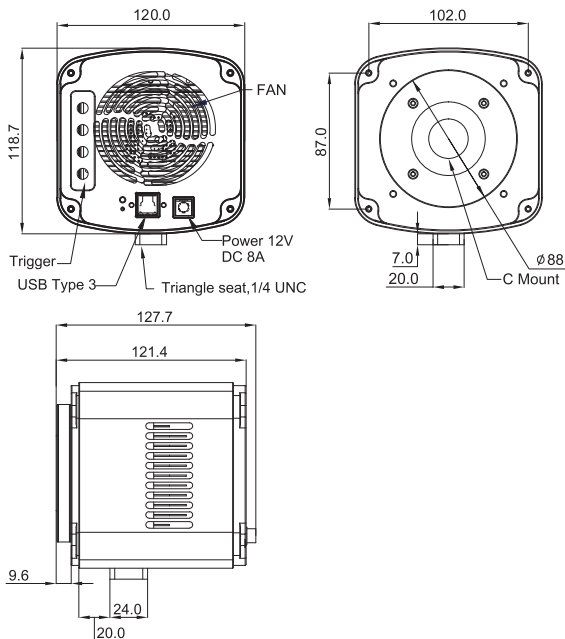


Key Features

- 1.2" area array
- 80% peak QE
- 35fps@full resolution
- 6.5µm x 6.5µm pixel size
- 30ke- full well capacity
- USB3.0 interface



Product structure (unit: mm)



Specifications

Model	Dhyana 400D
Sensor size	1.2"
Sensor model	G2020e(FSI sCMOS)
Color/monochrome	Mono
Quantum efficiency	80%@600nm
Effective no. of pixels	2048(H) x 2040(V)
Pixel size	6.5µm x 6.5µm
Effective area	13.3 x 13.3(mm)
Full well capacity	HDR: 30000e-, HighGain: 2000e-
Frame rate	35fps
Readout noise	HDR: 2.5e-, HighGain: 2e-
Shutter type	Rolling
Exposure model	Manual
Exposure time	0.013ms-10s
Cooling method	Forced air
Cooling temperature	Forced air(Ambient at +25°C): -10 °C
Dark current	0.6 electrons/pixel/s (0 °C) (typ.), 0.35 electrons/pixel/s (-10 °C) (typ.)
Dynamic Range	85dB
Sub-array	Support
Binning	2×2
External trigger mode	Hardware: Standard/Synchronous/Global trigger; Software
Signal output ports	Exposure / Global / Readout
External trigger routing	SMA
Digital interface	USB3.0
SDK	Support
Bit depth	16bit
Optional Mounts	C-mount
Power supply	12V/8A
Power consumption	60W
Camera size	120 x 119 x 121 (mm)
Camera weight	1853g
PC software	Mosaic / LabVIEW / Matlab / Micromanager
Compatible system	Windows / Linux
Operating environment	0-40°C, 10%-85% RH

Dhyana 400DC

Color sCMOS Cooled Camera

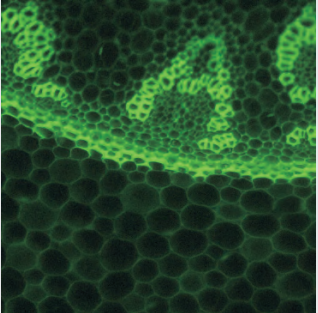
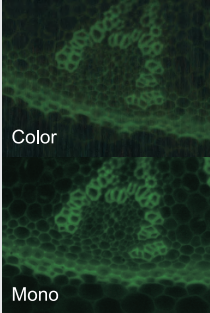
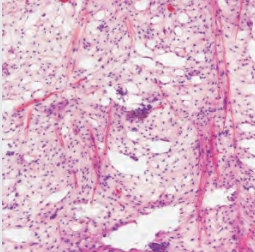


Key Features

- 1.2" area array
- 6.5µm x 6.5µm pixel size
- 22fps@full resolution
- USB3.0 interface

Specifications

Model	Dhyana 400DC
Sensor size	1.2"
Sensor model	G2020e(FSI sCMOS)
Color/monochrome	Color
Effective no. of pixels	2048(H) x 2044(V)
Pixel size	6.5µm x 6.5µm
Effective area	13.3 x 13.3(mm)
Full well capacity	HDR: 30000e-
Frame rate	22 fps@8bit, 16 fps@16bit
Readout noise	HighGain: 1.7e-
Shutter type	Rolling
Exposure model	Manual/Auto
Exposure time	0.021ms-10s
Cooling method	Forced air
Cooling temperature	Forced air(Ambient at +25°C):-10 °C
Dark current	0.6 electrons/pixel/s (0 °C) (typ.), 0.35 electrons/pixel/s (-10 °C) (typ.)
Dynamic Range	85dB
Sub-array	Support
External trigger mode	Hardware: Standard/Synchronous/Global trigger; Software
Signal output ports	Exposure / Global / Readout
External trigger routing	Hirose
Digital interface	USB3.0
SDK	Support
Bit depth	16bit / 8bit
Optional Mounts	C-mount
Power supply	12V/8A
Power consumption	50W
Camera size	120 x 119 x 121 (mm)
PC software	Mosaic/LabVIEW/Matlab/Micromanager
Compatible system	Windows / Linux
Operating environment	0-40°C, 10%-85% RH

<p>400DC 1.2" color sCMOS Exposure time: 3ms</p>  <p>400DC Multi-color fluorescence image</p>	<p>2/3" color sCMOS Exposure time: 3ms</p>  <p>Color</p> <p>Mono</p>  <p>400DC Pathological analysis image</p>
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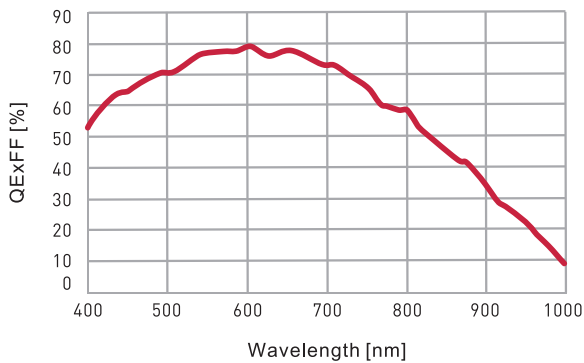
Dhyana 401D

Industrial size sCMOS Camera

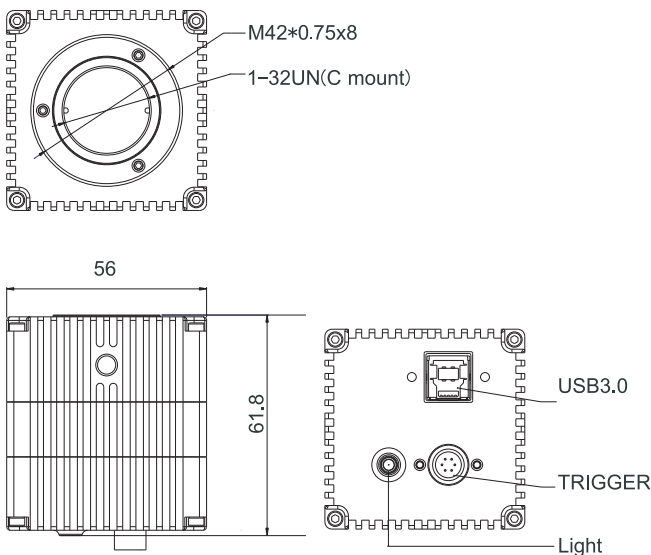


Key Features

- 1.2" area array
- 6.5µm x 6.5µm pixel size
- 80% peak QE
- 42ke- full well
- 40fps@full resolution
- USB3.0 interface



Product structure (unit: mm)



Specifications

Model	Dhyana 401D
Sensor size	1.2"
Color/monochrome	Mono
Pixel size	6.5µm x 6.5µm
Resolution	4MP
Effective no. of pixels	2048(H) x 2044(V)
Scan mode	Progressive
Shutter type	Rolling
Readout noise	HighGain: 1.9e-(Median)/2.0e-(RMS)
Full well capacity	HDR: 42000e-
Quantum efficiency	80%@600nm
Frame rate	40fps-16bit HDR, 45fps-8bit
Bit depth	16bit / 8bit
Exposure model	Manual / Auto
Exposure time	10us-10s
Sub-array	Support
Binning	1X1, 2x2, 4X4
External trigger mode	Hardware/Software
External trigger routing	Hirose
Compatible system	Windows / Linux
PC software	Mosaic/LabVIEW/Matlab/Micromanager/Samplepro
SDK	Support
Optional Mounts	C-mount
Digital interface	USB3.0
Power supply	USB3.0
Power consumption	< 4W
Camera size	50 x 50 x 62mm
Camera weight	305g
Operating environment	0-40°C, 0%-80% RH

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