



# Scientific CMOS Real-Color Camera

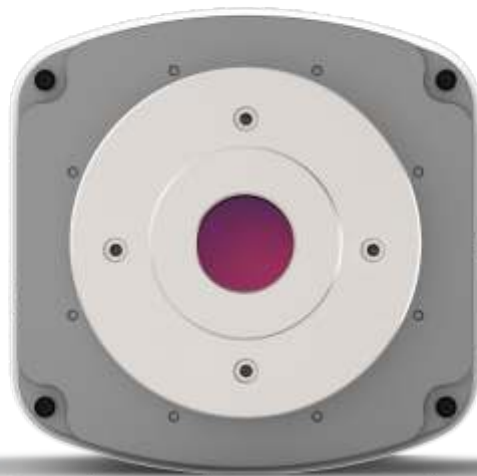
———— Dhyana 400DC ————



# sCMOS Scientific Grade Camera

## For the first time with true color

By combining their legendary color processing technology with the capabilities of the latest generation sCMOS sensors, TUCSEN have created a paradigm shift in color camera performance. The launch of the Dhyana 400DC, thanks to its sensitivity, perfect color reproduction and impressive noise minimization, results in a new capability which has formerly been unavailable in the field of scientific imaging.



Scientific CMOS  
Color sensor



1.8e- Readout noise  
Low noise level



48000e- Full well capacity  
Super large capacity



-10°C Cooling  
Low Dark Current

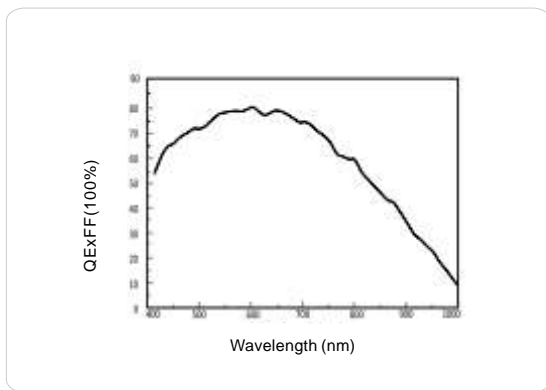


USB3.0 full speed output  
Very convenient to use

# High Sensitivity Color sCMOS Sensor

Some opportunities are fleeting, but should not be missed .

As a result of the breakthrough performance of the scientific grade color CMOS sensor, the Dhyana 400DC produces perfect images in very low light conditions, allowing for vastly reduced exposure times and corresponding high frame rates, whilst maintaining the richness of the image detail information.



## What is sCMOS ?

Scientific grade CMOS ,known as sCMOS ,is the combination of CCD pixel architecture with the read out integrated circuit system of CMOS image sensors .It has the advantages and characteristics of low noise ,high frame rate ,huge full well capacity and wide dynamic range.

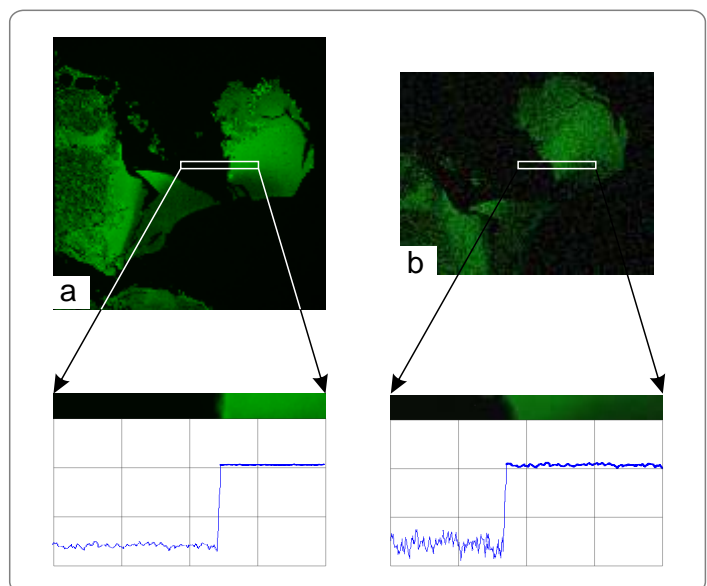
## 1.8e- Read Noise

The read noise of the Dhyana 400DC is only 1.8 e-, just one-third of existing CCD or CMOS cameras in the market. This delivers truly extraordinary signal-to-noise ratio and consistent image quality whether in bright field or dark field.

Comparison of the shot noise amplitude ►►

a. sCMOS real -color Dhyana 400DC

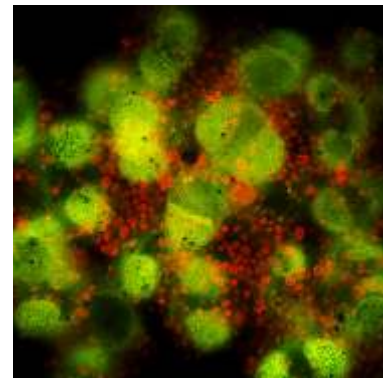
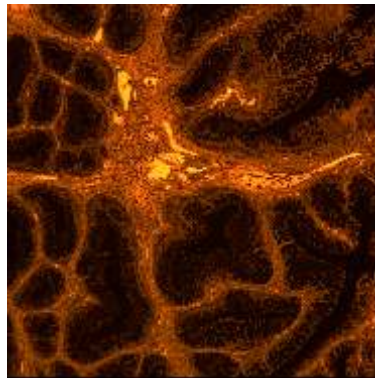
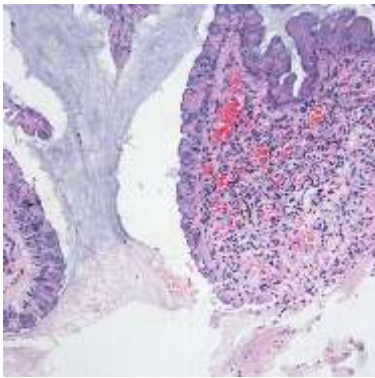
b. Conventional CCD color camera



# Perfect 16bit color reproduction

Outstanding color, with unique user control .

Inherited from the acclaimed TrueChrome series of cameras, the Dhyana 400DCs color processing is capable of a level of precision that imitates the color sensitivity of the human eye, producing extreme-high color definition. The 16 bit ADC guarantees the quality of image tone and detailed differences can be resolved so the monitor image is matched to the eyepiece view.



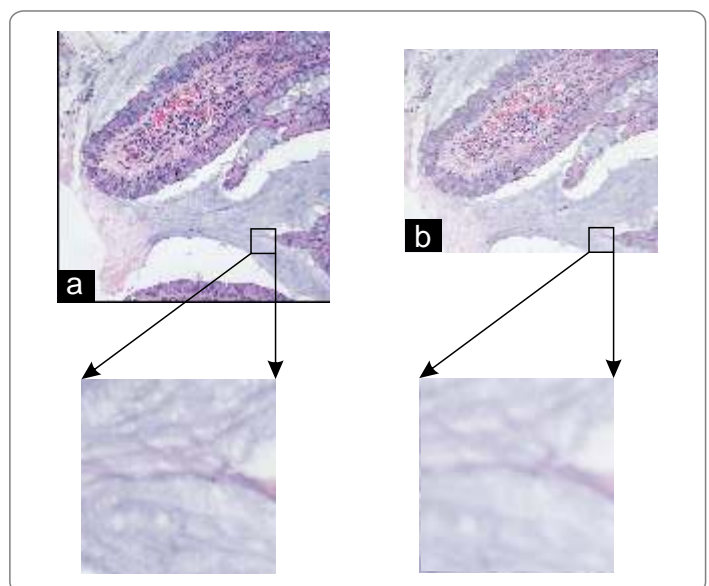
## The first 16 bit ISP image processor

The Dhyana400DC adopts an innovative 16 bit ISP image processor, with functions for high-definition image quality processing and fast output, to ensure high speed high quality images, with greater fidelity and precision.

Comparison of the flocculent structures ►►

a. sCMOS real -color Dhyana 400DC (16bit ISP)

b. Conventional CCD color camera

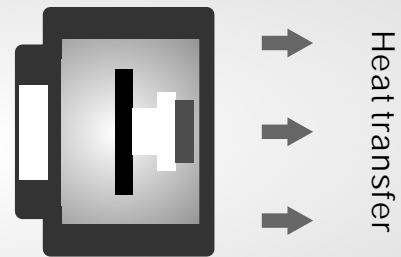


# Peltier Cooled Device -10°C for dark current control

Understatement is our symbol of quality

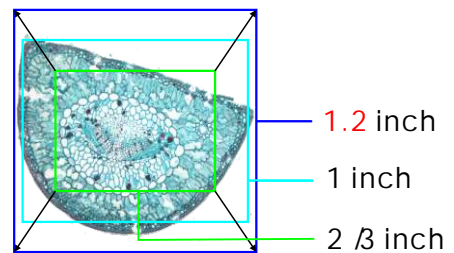
Steady cooling leads to significantly lower dark current, improving the signal to noise ratio, which results in greatly improved sensitivity and image quality. The Dhyana 400DC utilizes Peltier technology and achieves an operating temperature of -10°C resulting in extremely low and stable dark current. The Dhyana 400DC delivers consistent image quality day after day.

The Sensor Chamber--the critical part  
Standard warranty--2 years



## 1.2 inch--larger field of view

The 1.2 inch chip offers microscope users a larger field of view, with a direct full frame observation experience.



## USB 3.0--Faster data transmission

Uses the latest USB3.0 high speed transmission.



## Technical Features

Image sensor	
Sensor type	Scientific grade CMOS
Sensor size	1.2"
Color/Monochrome	Color
Image resolution	2048x2048
Pixels size	6.5 $\mu\text{m}$ x6.5 $\mu\text{m}$
Camera properties	
Read-out noise	1.8e-
Full well capacity	48000e-
Dynamic range	85dB
Shutter mode	Rolling shutter
Exposure mode	Auto, Manual
Exposure time	0.13ms-10s
Exposure control	
Scanning mode	Progressive scan
A/D	16bit C
Cooling System	Peltier Cooling system, -10 °
Live frame rate	27fps, (1024x1024)@16bit
	7fps, (2048x2048)@16bit
Parameter Settings	Noise Reduction, Gamma, WDR, etc White Balance, Exposure Time, Gain,
Preview and transmission	
Date transmission	USB3.0
Date cable	2.0m, USB3.0 cable
Software and operating system	
PC software	Tcapture
Operating System	Window/Linux/Mac
Ports and slots	
Video port	C mount
Date port	USB3.0, 5Gb/s
Power supply	12V/8A power supply
Ambient temperature	0-60 °

## Functions of the Software

### Camera Control

Auto /manual exposure
Resolution, white / dark balance
Previewing, acquiring images and video recording
Time lapse recording
ROI (Region of interest )
Image Processing
Gamma, contrast and saturation settings
Levels enhancement and RGB settings
Image Browse
Viewing thumbnails and full resolution browsing
Magnification, flipping and rotating settings
Images comparison, saving and printing
Fluorescence mode
One-touch overlay of multi-color images
Measurement
Static and dynamic Measurement
Calibration, name, label, etc.
Line segment, area, circle, angle, polygon, etc.
Measurement data storage and printing, etc.

## System Components

- Dhyana400DC Camera
- Tcapture & Driver Software
- 12V 8A Power
- USB3 0 Cable
- Product Certificate



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