



LA VISION

WE COUNT ON PHOTONS

## Imager *sCMOS*

scientific imaging  
breakthrough

Charge Coupled Device (CCD) cameras are known for their superior image quality, low read noise and large dynamic range. The architecture of Complementary Metal-Oxide Semiconductor (CMOS) cameras allows higher frame rates and direct pixel read-out with anti-blooming and anti-smearing characteristics. The new generation of scientific CMOS (sCMOS) sensors combines the advantages of both sensor technologies resulting in an unsurpassed image quality and system performance.



**Imager *sCMOS*** overcomes traditional trade-offs of current camera technology standards and offers outstanding imaging performance in the field of quantitative scientific (laser) imaging.

### Specifications

<b>Sensor format</b>	2560 x 2160 pixels
<b>Pixel size</b>	6.5 $\mu\text{m}$ x 6.5 $\mu\text{m}$
<b>Read noise</b>	< 2 e <sup>-</sup> rms @ 16 frames/s
<b>Max. frame rate</b>	50 frames/s @ full resolution
<b>Dynamic range</b>	15000:1 @ 16 frames/s
<b>Max. QE</b>	60 % @ 550nm
<b>Double-frame (PIV) mode</b>	yes

LaVision's **Imager *sCMOS*** camera is especially designed for the demanding requirements in laser imaging applications such as Particle Image Velocimetry (PIV) and Planar Laser Induced Fluorescence (PLIF): low light imaging combined with large signal variations, highest temporal and spatial resolution over large fields of view illuminated by the laser sheet.

### Applications

- ▶ laser imaging such as PIV and PLIF for combustion, spray and flow visualization
- ▶ high resolution particle imaging
- ▶ spectroscopic and microscopic imaging

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## Outstanding imaging parameters

The quality of laser imaging experiments benefits in different ways from the outstanding imaging parameters of the **Imager sCMOS** camera.

## Highest sensitivity

Due to its extremely low read noise and high quantum efficiency **Imager sCMOS** supports photometric imaging even under lowest light levels. Therefore, less powerful lasers can be used for light sheet generation maintaining the signal-to-noise ratio, or larger fields of view can be illuminated with the same laser pulse energy.

## High resolution sensor

The 5.5 Megapixel sensor offers excellent spatial resolution covering large fields of view. Flow structures and velocity fields are imaged with superior spatial resolution.

## Wide dynamic range

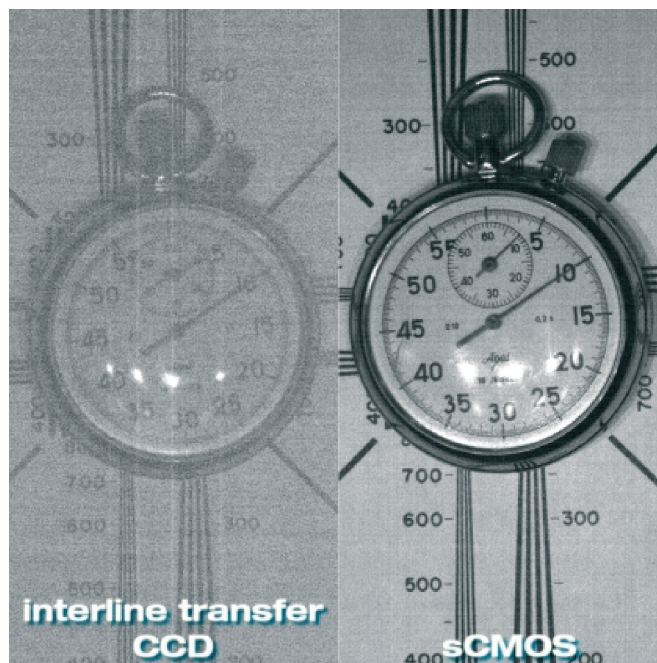
The novel sCMOS architecture combines highly resolving 6.5  $\mu\text{m}$  pixels with a large pixel well depth. This large pixel capacity in combination with its low read noise provide high signal-to-noise ratio measurements.

## Rapid frame rates

The higher frame rates supported by the CMOS technology allow measurements up to 50 frames/s at 5.5 Megapixel resolution not achievable with CCD sensors. Laser imaging up to 100 frames/s is possible at reduced sensor formats using windowing techniques.

## Double-frame PIV mode

The unique double-frame mode of the **Imager sCMOS** camera supports PIV measurements with shortest interframe-times allowing the investigation of high speed flows.



*Comparative images taken with sCMOS vs interline CCD under low light conditions*

Data provided by LaVision is believed to be true. However, no responsibility is assumed for possible inaccuracies or omissions. All data are subject to change without notice.

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