

# POWERVIEW™ 1.4MP Camera Model 630066

### Features

- Pixel resolution with 1.4 million pixels (1376 x 1040 resolution)
- 12-bit intensity dynamic range
- Short frame straddling times
- Variable exposure times
- Peltier cooled CCD array for low noise environment
- LED indicators show operational status
- Designed for PIV, microPIV and PLIF

### Model 630066

TSI's POWERVIEW 1.4MP Camera, together with TSI's LASERPULSE™ Computer-controlled Synchronizer and *INSIGHT 3G*™ Image Capture and Analysis Software, provides state-of-the-art capabilities for PIV image capture and analysis. When using the camera for PLIF measurements, the Synchronizer combines with the *INSIGHT 3G* software to control the number of laser pulses to be used in single or multiple frames in the camera.

### High Signal Quality

The PowerView 1.4MP camera operates at ten frames per second and has 1.4 megapixel spatial resolution with a 1376 x 1040 pixel format. A 12-bit dynamic range for each pixel ensures accurate imaging of both small and large particulates in the flow. Thus, particle images are better defined and the velocity vectors are calculated more accurately. A unique pseudo-color display available in TSI's *INSIGHT 3G* software package allows the pixel intensity to be displayed as a range of colors. Pixels with saturated or near-saturation intensity are easily identified.

The approach for maintaining the CCD temperature combines a Peltier cooler with forced air cooling. The CCD detector provides lower dark current, a distinct advantage for long exposure



time PLIF applications. The low noise environment in the camera also provides an excellent case for microPIV applications.

### Applications

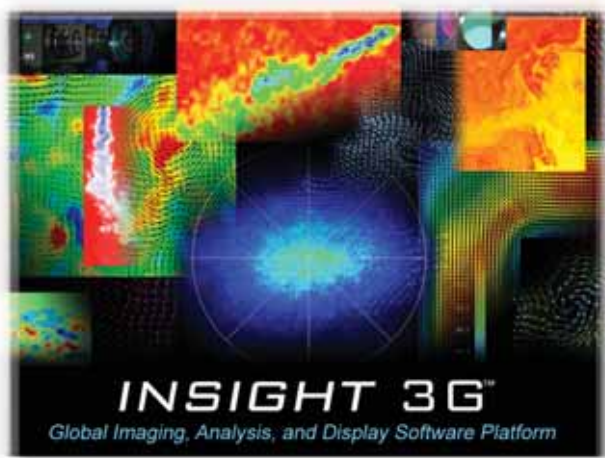
In PIV frame-straddling mode, the Synchronizer provides the pulse delay that positions the first laser pulse at the very end of the first video frame and the second laser pulse toward the beginning of the second frame. The *INSIGHT 3G* software signals the camera to capture a pair of frames when the laser is pulsed. The pulse separation can be as low as 0.2 microsecond and adjusted to measure velocities ranging from mm/sec to supersonic speeds

In PLIF, the ability to image fluorescence from the flow field enables various scalar flow properties to be measured. For PLIF, long exposure times are particularly useful for averaging the intensity over several laser pulses.

The Synchronizer, with the appropriate pulse delay, allows time-sequenced image capture of the flow field. The combination of the POWERVIEW 1.4MP camera and the Synchronizer allows the image pairs to be captured and transferred at the full camera rate.

## INSIGHT 3G Global Imaging, Analysis, and Display Software Platform

The **INSIGHT 3G** package features all of the tools needed for even the most advanced global imaging measurements, from our patented processing algorithms to the most elaborate data analysis features available. And now, equipped with the **HyperStreaming Module**, the power of the **INSIGHT 3G Platform** can be unleashed on enormous amounts of data, using features such as the **POD Analysis Toolbox** and distributed processing capability over a network of computers to quantify the flow properties of interest with the desired detail.



## Specifications

### Model 630055 Camera and Interface

<b>Number of Pixels</b>	1376 (H) × 1040 (V)
<b>Pixel Size</b>	6.45 μm × 6.45 μm
<b>CCD Temperature</b>	-12°C (two-stage Peltier cooler with forced air cooling)
<b>Dynamic Range</b>	12-bit
<b>Frame Rate</b>	10 fps
<b>Spectral Range</b>	270 to 1100 nm
<b>Quantum Efficiency</b>	62 percent at 500 nm
<b>Binning Factor</b>	
<b>Horizontal</b>	1, 2, 4, 8
<b>Vertical</b>	1, 2, 4, 8, 16, 32
<b>Exposure Mode</b>	
<b>PIV Frame-straddling</b>	200 ns minimum between frames
<b>Triggered Exposure Time</b>	500 ns to 1000 s
<b>Lens Mount</b>	F-mount
<b>Data Transfer</b>	
<b>Standard</b>	Coaxial cable (5 m)
<b>Optional</b>	Fiber optic link (10 m to 1500 m)
<b>Camera Interface</b>	High speed PCI board

Specifications are subject to change without notice.



TSI Incorporated

**Headquarters—Tel:** +1 651 490 2811 **Toll Free:** 1 800 874 2811 **E-mail:** fluid@tsi.com

**UK Tel:** +44 1494 459200 **E-mail:** tsiuk@tsi.com

**France Tel:** +33 491 95 21 90 **E-mail:** tsifrance@tsi.com

**Germany Tel:** +49 241 523030 **E-mail:** tsigmbh@tsi.com

**Sweden Tel:** +46 8 595 13230 **E-mail:** tsiab@tsi.com

**India Tel:** +91 80 41132470 **E-mail:** tsi-india@tsi.com

**China Tel:** +86 10 8260 1595 **E-mail:** tsibeijing@tsi.com

