

POWERVIEW™ Plus 4MP Camera Model 630059

Next generation POWERVIEW Plus Camera with 4 million pixel resolution, only from TSI!



Features

- High pixel resolution with 4 million pixels (2048 × 2048 resolution)
- 12-bit intensity dynamic range
- Short frame straddling times
- Variable exposure times
- Image capture rate of 16 frames per second
- Enhanced image sensitivity and increased image capture rate with pixel binning
- Protective mask
- Low noise and high quantum efficiency
- Designed for PIV, microPIV and PLIF
- LED indicators show operational status

Next Generation Cameras

TSI, the pioneer in 4 mega-pixel cameras designed exclusively for global flow measurements, offers the next generation of POWERVIEW Cameras. This compact POWERVIEW Plus 4MP Camera incorporates new features important for accurately measuring flow properties and scalar quantities using laser imaging. Advanced electronics and CCD design are the keys to the high performance afforded by this compact.

High Signal Quality

The 4MP camera provides high quantum efficiency and low noise levels thanks to a unique electronic design. The CCD and its digitization circuit are completely shielded to eliminate electronic noise from the rest of the circuit and the environment. The CCD array offers high quantum efficiency for PIV and PLIF applications with spectral response over a broad wavelength range.

Applications

The POWERVIEW Plus 4MP Camera covers a wide range of applications, from microflows, to hypersonic flows, to spray analysis and concentration/temperature measurements using PLIF. Frame straddling times below 200 ns allow the camera make accurate flow measurements in high speed flows. A binning capability, with horizontal and vertical pixel binning, increases image capture sensitivity, a feature particularly useful for PLIF concentration/temperature measurements. Binning also results in increased frame rate. The variable exposure time settings for the image frame allow multiple laser pulses in the same frame to do in-camera integration.

Protective Mask

An integrated protective mask on the CCD array is a trademark of POWERVIEW Plus cameras. The mask is vital for protecting the CCD array output circuit from fatal damage due to potential laser light reflections. It improves camera reliability and ensures a long lifetime meeting your measurement needs.



Industrial Standard for Camera Output

The camera employs the industrial standard Camera Link® interface as its output protocol, ensuring fast, reliable data transfer to the host computer. The 64-bit interface lets the camera transfer data at its full frame rate (up to 512 MB/s) to the computer memory, consistently and reliably, in single and stereo camera configurations. Consequently, you see results on-line while the camera is capturing data, an enormous benefit compared to the slower Firewire® camera image transfer. TSI POWERVIEW Plus cameras employ the same Camera Link output format, so you can switch from one camera type to another without changing the frame grabber and cables. This is true upgradeability!

INSIGHT 3G™ Software

The latest **INSIGHT 3G** software works seamlessly with the 4MP camera for global image capture and analysis. It controls image capture and data transfer in single and stereo arrangements for both PIV and PLIF. Critical analysis schemes, such as the patented Hart Correlation, Rohaly-Hart Correlation, and Deformation processing, are incorporated to ensure accurate PIV analysis. Image analysis, manipulation and in-situ calibration are provided for PLIF intensity measurements.

The Tecplot® graphical display and analysis package is integrated with the **INSIGHT 3G** software, enabling seamless, on-line graphical display and data manipulation along with advanced flow statistics and property computation. Various Toolboxes (Time series, POD) based on Matlab®, developed by TSI, are also included to provide flow statistics, spectrum analysis and turbulence analysis, especially useful for time-resolved PIV measurements.

Compact Design and Remote Operation

This compact camera weighs less than 1 kg and can be used in packaged PIV systems as well as in applications where space and/or accessibility are limited. The camera is connected to the camera interface in the computer with a Camera Link cable. No additional controller box is necessary. For applications which require a long dis-

tance between the camera and computer, a longer Camera Link cable or fiber optic cable are options. The camera can be equipped with a remote control camera lens for focusing and aperture adjustments. Remote Scheimpflug adjustment for Stereoscopic PIV also can be incorporated.

Specifications

Model 630059 POWERVIEW Plus 4MP Camera

Imaging Device	Progressive Scan Interline CCD with microlens
Pixel Resolution	2048 × 2048 pixels
Pixel Size	7.4 μm (H) × 7.4 μm (V)
Image Size	15.15 mm (H) × 15.15 mm (V)
Intensity Dynamic Range	12-bit
Frame Rate	16 fps in Frame Straddling Mode
Quantum Efficiency	57% maximum
CCD Operating Temperature	40°C
Spectral Range	350 nm to 740 nm (more than 20% QE)
Blooming Suppression	>300X
Pixel Clock Rate	40 MHz per channel
Number of Channel Outputs	2 channels
Frame Straddling Time	200 ns
Protection Mask	Integrated protection mask for the CCD output circuit
Lens Mount	F-mount
Camera Output	Dual output parallel LVDS
Operation Modes	Free Run, Triggered and Frame Straddling
Exposure Time	42 μs to 105 ms for Frame A in Frame Straddling; 42 μs to 105 ms for single frame in Triggered
Binning	1 to 12, horizontal and vertical
Camera Control	RS-232 via frame grabber cable
Camera Display	LED display of operation, power and output
Camera Head Dimension	45 × 68 × 66 mm
Camera Head Weight	0.8 kg
Camera Interface	64-bit Camera Link
Frame Grabber Cable	5 m standard with RS-232 communication
Power Cable	5 m standard with universal power supply
Power	12 VDC @ 6.0 W
Standard Camera Lens	Nikon 50 mm F1.8 lens

Specifications subject to change without notice.

Camera Link is a trademark of Automated Imaging Association
Firewire is a trademark of Apple Computer, Inc.
Tecplot is a trademark of Tecplot, Inc.
Matlab is a trademark of The Mathworks, Inc.



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