LASERPULSE™
SYNCHRONIZER
MODEL 610036

The LaserPulse Synchronizer Model 610036 from TSI is a programmable master timing control unit for use in Particle Image Velocimetry (PIV), and countless other related applications. As the master controller for system components, it automates control of the timing between laser pulses, camera exposure times, camera interfaces, and any external device during system set-up and image acquisition with an amazing 0.25 ns resolution. The Synchronizer enables the system to be completely computer-controlled using USB or RS-232 interface. Signals for the laser flash lamps and Q-switches, the camera, and the frame grabber are generated and automatically synchronized for accurate image acquisition through TTL and time domain trigger signal input and output, with a total of ten programmable output/input channels.

Applications

The Model 610036 Synchronizer can be used for the following global analysis applications:

+ Particle Image Velocimetry (PIV)

+ Planar Laser-Induced Fluorescence (PLIF),

+ Time Resolved Particle Image velocimetry (TR-PIV)

+ Volumetric 3D Velocimetry (V3V)

+ MicroPIV

+ Spray Analysis and Global Sizing Velocimetry (GSV)

Features

+ 8 independent output channels; 2 input channels

+ 250 pico second time resolution

+ Simultaneous control of multiple cameras

+ External triggering for phase-locking measurements

+ Trigger signals for PIV, PLIF, and high-speed lasers

+ Trigger signals for high resolution and high speed cameras

+ Programming through INSIGHT 4G™ Data Acquisition, Analysis and Display Software

+ Digital front panel display of settings

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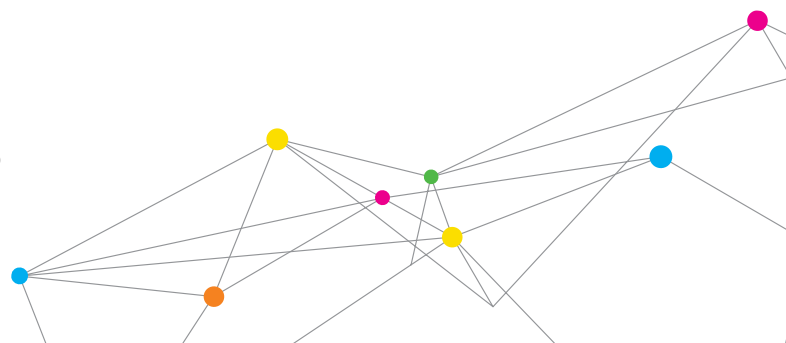
SPECIFICATIONS

LASERPULSE™ SYNCHRONIZER
MODEL 610036

INSIGHT 4G™ Global Imaging, Analysis, and Display Software Platform

The INSIGHT 4G 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. The INSIGHT 4G software platform utilizing the Windows 7 64-bit operating system provides the most powerful computing to help your flow diagnostics. Taking advantage of the Macro programming, analysis of multiple sets of experimental data can be analyzed easily and automatically. The 64-bit environment, plus the distributed processing capability over a network of computers, can also provide results more quickly.

For PIV measurements, the pulse delay time and the time between pulses necessary to collect frame-straddled images are controlled by the Synchronizer via TSI's INSIGHT 4G software.

For PLIF or other specialized imaging experiments, the Synchronizer can drive the cameras in a long exposure mode, integrating the collected light signal over multiple laser pulses or pulse-pair cycles. Simultaneous PIV/PLIF experiments can also be coordinated via the Synchronizer, providing complete control of 3 cameras (two for stereoscopic PIV measurements and one for PLIF) as well as the laser flash lamps and Q-switches. The Model 610036 Synchronizer can operate in an external trigger mode, for phase-locking PIV or PLIF measurements to some external event or periodic trigger.

Pulse Generation	
Delay	0 - 5,000 s
Pulsewidth	10 ns to 1,000 s
Resolution	0.25 ns
Time base	100 MHz, Low jitter PL
RMS jitter	<50 ps
Outputs	
Outputs	TTL/CMOS, Adjustable 2 - 20 V, 35 V (optional)
Impedance	50 Ohms
Slew Rate	>0.5 V/ns
Overshoot	<100mV + 10% of pulse amplitude
Amplitude	2.0 - 10 VDC into 1 Kohm load 1.0 - 10 VDC into 50 ohms
External Trigger	
Rate	DC to 5 MHz
Threshold	500 mV to 15 V
Input range	60 V Peak
Trigger slope	rising or falling edge
RMS jitter	50 ps
Hardware	
Communication to computer	USB, RS-232
Operating voltage	120/240 VAC, 50-60 Hz
Dimensions (H x W x D)	8 × 4.75 × 10.5 in. (20.3 × 12 × 26.7 cm)
Weight	2.5 lb. (1.1 kg)

Specifications are subject to change without notice.

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