PIV Synchronizer

Frontview
of the new
PIV Synchronizer

The PIV Syncronizer is a programmable timing unit designed to control the operation of a complete PIV system, managing all the timing events needed for making PIV measurements - whether 2D or Stereo. The PIV measurement process requires that different components of the system, i.e. the camera, the laserflash lamps and Q-switches, be precisely time-coordinated. The syncronizer achieves this by executing programmed time sequences of command signals to the camera, laser and other external devices. A choice of automatic and manual configurations is available, covering a large range of experimental situations from single image acquisition to multi-sequence image bursts, phase-locked operation, internal or external triggering.

With a new concise structure in the firmware, the syncronizer supports free programming of all following items:

- **SETUP PIV SYNC**: Save and load 2 user configurations and one default setting, firmware update
- **TIME INCREMENT**: Adjustable step width (down to 125 ns) for all following settings
- **OUTPUT TIMING**: Adjustable pulse distance, laser energy (both cavities independent), TTL signals pulse width, camera signal pulse width, camera delay and output delay
- **OUTPUT REPS**: Separately adjustable repetition rate 1…30 Hz for lamps, Q-switch and camera, turn single signals on/off for test, high or low TTL signal edge for camera trigger
- **TRIGGER INPUT**: Select between rotation angle correlated trigger mode (0…360° in steps of 0.25°) or delay trigger mode in dependence on an external TTL trigger signal, another option allows to add a trigger increment to every acquisition, so that the system scans the whole phase automatically, in both trigger modes the number of frames is adjustable
- **ANALOG/DIGITAL INPUT**: Enables you to grab 8 analog input signals (+/- 10 Volt, like pressure or temperature converters) and a 12 bit digital input signal synchronised to each camera image

The new front panel design enables control and direct access to the most commonly used parameters pulse distance and laser energy by separate push-buttons and displays

Specifications

Backview of the new PIV Synchronizer

Output Channels	5 TTL compatible outputs for flashlamp, Q-switch and camera
Output Impedance	50 Ohm (all channels)
Output High Voltage	5, 12, 15 or 24 V
Input channels	2x TTL-compatible inputs: camera signal, external trigger
Input protection	High-speed opto-isolation
Max. Admissible Input Voltage	24V
Digital Inputs	12 bit digital input, signal synchronised to each camera image
Analog Inputs	8 analog input signals (+/- 10 Volt, like p- or T converters)
Incremental encoder inputs	up to 12
Ports	USB, Digital, Analog, RS 232, External sensor
Display	4 line alphanumeric LCD array
Operation	Standalone or dedicated interface in VidPIV Trigger&Acquire node
Configuration	Via front panel menu or software interface
Dimensions	235 mm x 295 mm x 146 mm (Width x Lenght x Height)
Weight	4,5 kg
Power supply	110...220 V, 50...60 Hz, 1A/2A

Accessories

- Due to the often used external trigger mode, the Syncronizer is now delivered with a laser optical switch (up to 30 m detection range), which can be connected
- Firmware update key

Note: the new Syncronizer Firmware (Version 3.20, delivery since August 2002) can be easily flash-updated by RS232. The newest internal firmware is available for download at www.ila.de.

Intelligent Laser Applications GmbH
Karl-Heinz-Beckurts-Straße 13
D-52428 Jülich
T +49 (0) 2461. 690 430
F +49 (0) 2461. 690 439
info@ila.de
www.ila.de