



[CCD CAMERAS](#)

[ICCD CAMERAS](#)

[IMAGE INTENSIFIERS](#)

[ACCESSORIES](#) x

## »» TauTec: Time-Resolved Imaging, Microscopy & Spectroscopy »»

[Home](#)

[COMPANY](#)

[SYSTEMS](#)

[CAMERAS](#)

[RESOURCES](#)

[CONTACT US](#)

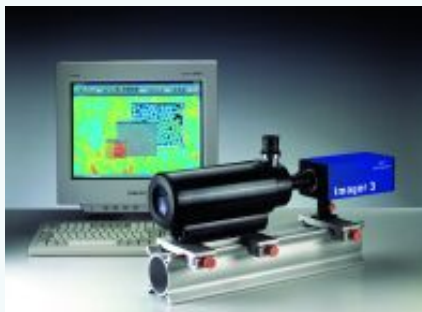
### ACCESSORIES FOR

### IMAGING, MICROSCOPY AND SPECTROSCOPY

#### Coupling Adaptors

For optical coupling of the various CCD and ICCD cameras, several adaptors such as C-mount, F-mount, or customized (for various microscopes, imaging spectrographs etc.) are available. Please contact for more details.

#### Long Distance Microscopes



for diffraction limited resolution imaging at high magnification and long working distances Based on high speed, high resolution Cassegrain catadioptric design.

**QM 100: 1.5 $\mu$ m @ 15 cm; QM 1: 3 $\mu$ m @ 55cm; DR1: 12 $\mu$ m @ 300cm**

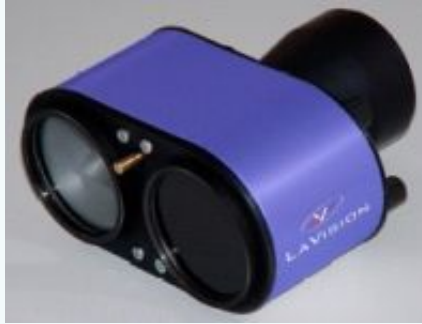
#### Dual/Quad View Image Splitters

TauTec offers Dual/Quad View Image splitters from Optical Insights Inc. for simultaneous dual or quad channel imaging on the same CCD cameras.

We also offer optical setups for simultaneous multichannel imaging using multiple detectors (PMTs or CCD cameras).

#### Image Doubler

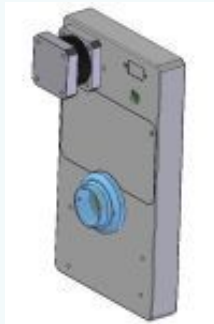
The Image Doubler is a stereoscope and provides the projection of an image pair onto one camera. Filters can be inserted for each image separately.



### Imaging Spectrographs

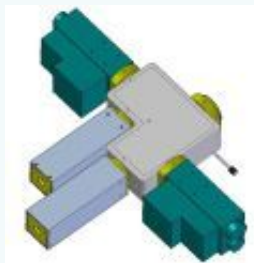
For spectral imaging, the CCD/ICCD cameras can be conveniently coupled to imaging spectrographs. TauTec offers and supports imaging spectrographs from different vendors.

### Fast Filter Wheel



- 8 position filter wheel
- accommodates standard 25mm filters
- < 65ms switching time between adjacent positions
- remote control via RS 232 interface
- simple control, driver for most OS available
- adapters for most standards available (c-mount, dovetail, ...)

### Multi PMT Detector Port



- accommodates up to 4 PMTs
- separates up to 4 wavelengths by dichroic mirrors and edge filters
- simple load/unload mechanism for dichroics and filters
- integrated manual shutter
- fits to most commercial microscopes
- adapters for most standards available (c-mount, dovetail, ...)

### Multi-Detector Port

accommodates up to 3 detection devices



3 configurations adjustable

top ccd

rear ccd and top ccd (light can be separated with dichroic or beam splitter)

side port (can be equipped with PMT Detector Block)

fits to most commercial microscopes

adapters for most standards available (c-mount, dovetail, ...)

### Advanced Picosecond Delay Unit



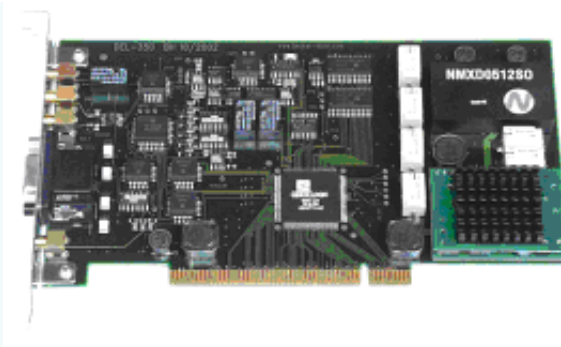
This compact unit is designed for the critical timing adjustment of fast instruments. It will delay an arbitrary input signal over an adjustable range of 20 ns in 25 ps steps and consists of a set of switched 50 ohm calibrated delay lines together with a controlling microcomputer. There is no inherent jitter. The rise time is about 500 ps and has a high voltage capability for short pulses. The delay is set from the front panel or from an RS 232 remote control interface. Current delay setting is shown on LCD display with relative or absolute delay mode. The delay is achieved by the switching in and out of sections of delay line by matched relays. The unit will be useful in such applications as the adjustment of timing of fast cameras and triggering or pulse shaping in laser systems.

### Specifications:

- Delay Range                    20ns
- Intrinsic delay                6.5ns
- Delay Step                     25ps or multiples thereof
- Interstep error                +- 0.5 steps
- Jitter                            effectively zero, mechanical device
- Impedance                      50 ohm
- Voltage Handling              DC 30V, 1.5kV/ns
- Control                         Fully functional manual control via front panel keys
- Remote control                RS 232, 9600 baud, ASCII commands
- Display                         LCD Display of status and functions

### Picosecond Delay Generator

**Delay Generator:** The delay generator provides pulse delay times from the ns range to the  $\mu$ s range with a delay resolution down to 2.5 ps. Its low jitter and short intrinsic delay makes it useful for a variety of triggering and pulse shaping applications.



All delay and trigger parameters are controlled via the Windows compatible software. For user programmed special applications a DLL library of the basic module functions is available.

### Specifications:

- Delay Resolution: down to 2.5 ps
- Jitter: min. 10 ps or 0.05 % of Delay Range
- Delay Range: 10 ns to 100  $\mu$ s
- Input Trigger: 50mV to 2V
- Output: TTL, ECL or NIM
- Output Pulse Width: 2 ns to 2000 ns
- PCI Plug-In Interface
- Windows compatible user interface

### Picosecond Precision Trigger Unit



The compact optical trigger unit has been designed to provide stable trigger pulses from optical pulses with unstable amplitude. The principle of operation is as follows: the photodiode converts the input optical pulse into an electrical signal. The electrical pulse is then shaped by a linear electrical network to yield a bipolar zero-crossing pulse. The zero-cross trigger unit generates an output pulse with a well defined amplitude and duration. To avoid triggering of zero-cross trigger unit by small noise pulses, an additional leading edge threshold discriminator is used which

enables the zerocross trigger unit only if the input amplitude exceeds an adjustable threshold. Thus the threshold discriminator decides whether the circuitry triggers but the timing is determined by the zero-cross trigger unit.

### Features:

- stable and precise triggering on optical pulses or electrical pulses

- negligible influence of amplitude fluctuations
- jitter < 30 ps @ 1:10 amplitude fluctuations
- >1.5 V output pulse amplitude
- trigger indicator LED

### Specifications:

- Power supply + 5V /300 mA
- Output pulse voltage 1V .... 1.5 V @ 50 ohm
- Output pulse width 5 ns (other values on request)
- Intrinsic delay 5 ns
- Trigger rate Max. 125 MHz
- Jitter < 30 ps @ 1ns pulse and 1:10 amplitude fluctuation
- Photodiode Si;0.5 mm diameter
- Threshold and zero-cross levels adjustable

### Trigger Resynchronizer



It is often necessary to produce a trigger signal that is synchronised to an RF waveform but occurs at a random time. The Trigger Resynchroniser will produce a low jitter output synchronised to the RF at a time after a trigger signal is received.

### Specifications:

- Trigger Input: >1.5V into 50 ohm
- Trigger Pulse Width: 5ns
- RF Bandwidth: 1MHz - 1GHz
- RF Sensitivity: 300mV peak to peak @ 100MHz, 750mV at 500MHz
- Outputs: 5V into 50ohm, max. rep. rate 4MHz
- Jitter: ca. 10ps rms at 100 MHz

### Online Energy Meter

For normalization of images due to laser energy fluctuations

The Online Energy meter is designed for measurement of laser pulse energy. It is capable of measuring the energy of individual laser pulses from a burst and simultaneously with the acquisition of CCD images. The online energy meter may be used as a stand-alone unit or within a complete optical diagnostic system. The simultaneous acquisition of camera images and laser energy increases the accuracy of measurements based on absolute quantification of e.g. LIF signals. Correction for the laser energy variations can be performed by software either online or using batch processing routines.

### Features

- spectral range: 248-900 nm (other wavelengths on request)
- wavelength selection by easily changeable filters
- adjustable to typical YAG or Dye laser powers
- repetition rate up to 100 kHz
- doublepulse separation down to 4µsec pulse to pulse delay
- high dynamic range > 1:500
- repeatability > 99%
- single pulse resolution
- TTL trigger input for synchronization with camera
- data acquisition via USB (optional RS232)

