Specifications & Contact

Input Channels

To synchronize the FLIM *X 16* to the microscopy setup it has to be triggered by the laser and the scanner. The FLIM *X 16* provides 3 TTL inputs for:

- Laser Trigger
- Frame Trigger and
- Line Trigger.

Computer Interface

The FLIM *X 16* has an USB 2 interfaces that makes data transfer to the computer fast and easy. LaVision BioTec's ImSpector Software Package proceeds the data to get real time FLIM images.

Electronics

Total counting rate:	76 MHz
# of channels:	16
Dead time/channel:	5.5 ns
Max counting rate [burst]:	>2.5 GHz
Multi-hit ability:	yes
Temporal bin size:	80 ps

PMT Detector

Number of channels:	16
Arrangement:	linear (1 x 16)
Spectral response:	300-800 nm
Time Resolution [FWHM]:	300 ps [depends on detector choice]
Δt between channels:	40 ps rms

Contact

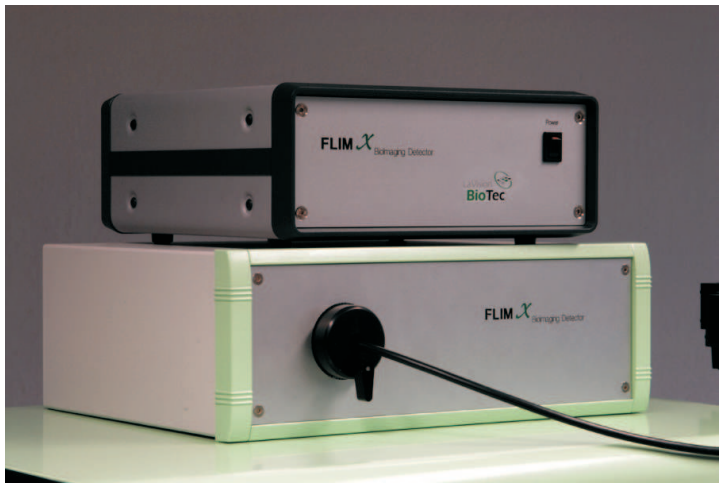
LaVision BioTec GmbH
Meisenstraße 65
D-33607 Bielefeld
Germany

www.lavisionbiotec.com
info@lavisionbiotec.com
Tel: +49 (0) 521 2997 710
Fax: +49 (0) 521 2997 701

FLIM *X 16* - 78 Mhz TCSPC Detector

LaVision BioTec's FLIM *X 16* TCSPC detector combines the advantages of intensified CCD cameras and PMT based FLIM detectors – it is fast and delivers confocal resolution even in deep tissue imaging.

FLIM X^{16} TCSPC Detector

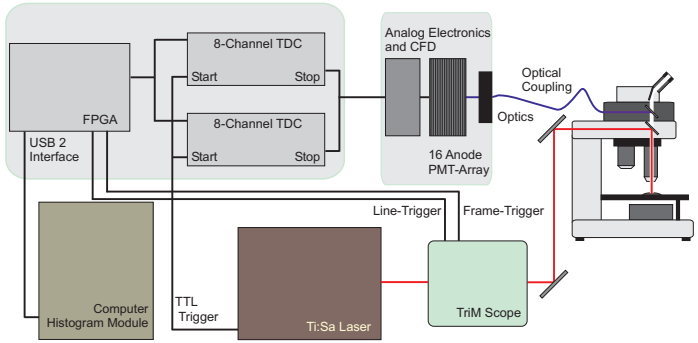


Single point vs. 2D detector

The image acquisition time of PMT based FLIM [Fluorescence Lifetime Imaging Microscopy] systems is limited by the maximum photon counting rate, which is in the range of 1-8 MHz. FLIM systems, which are based on intensified CCD cameras overcome this restriction – but their sensitivity and spacial resolution is limited. LaVision BioTec's PMT based **FLIM** *X 16* TCSPC [time correlated single photon counting] detector combines both advantages – it is fast and sensitive. Advanced electronics and optics deliver 76 MHz photon counting rate [**short term bursts up to 2.5 GHz**]. Therefore the **FLIM** *X 16* TCSPC is the perfect FLIM detector for laser-scanning microscopes.

Setup

Setup

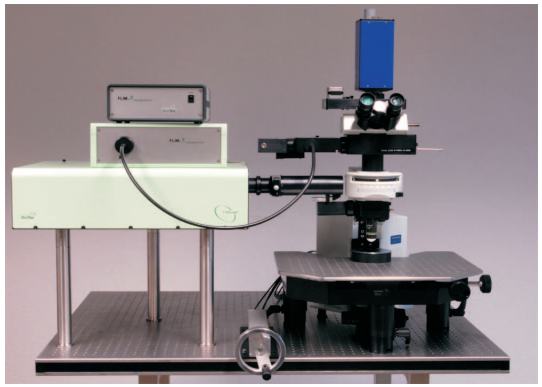


Components

LaVision BioTec's TCSPC [time correlated single photon counting] system includes:

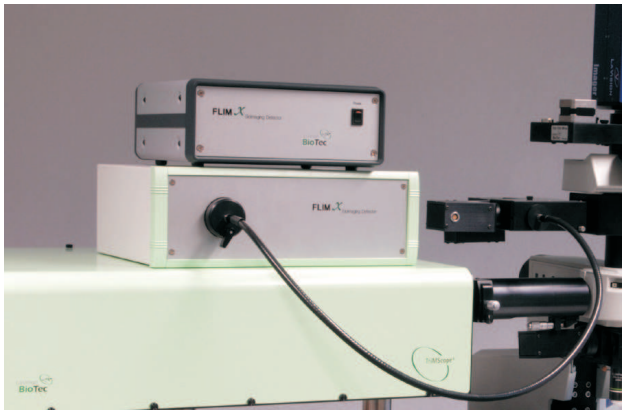
- Liquid light guide for optical coupling to the microscope
- Collection optics
- 16 anodes PMT-array
- Analog electronics including 16 CFDs [Constant Fraction Discriminator]
- Two 8-channel TDCs [Time To Digital Converter]
  Including FIFO storage for each TDC channel that allows short term detection at a rate of up to 2.5 Ghz
- Long-term acquisition rate is 76 MHz
  Only 5.5 ns dead time for each TDC channel
- 1 FPGA [Fast Programmable Gated Array] including USB 2 interface to the computer
- ImSpector Software Package including FLIM module
  LaVision BioTec's ImSpector microscopy software provides an easy to use GUI to operate all TCSPC modes and to handle and process the data
- Lab View Driver

FLIM *X 16* TCSPC Detector and TriM Scope



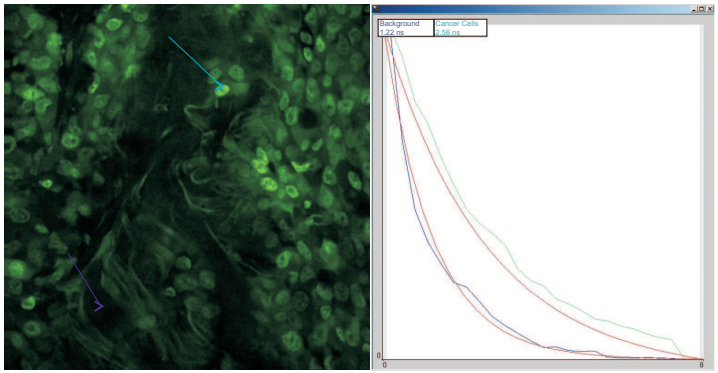
Coupling to the Microscope and Applications

Coupling to the Microscope



The integration to the microscope is straightforward as LaVision BioTec's FLIM *X 16* can be coupled to any microscope PMT port by a liquid light guide. LaVision BioTec's software supports simultaneous FLIM and fluorescence intensity measurement.

FLIM image of 1080 Cancer Cells



Intensity image of 1080 cancer cells and decay curves of an individual cell and background.