

SPECIFICATIONS

FastFLIM



FastFLIM is the data acquisition card for your FLIM acquisition when acquisition time is of the essence. The card has been developed using Digital Frequency Domain (DFD) technique that allows for the acquisition of Time-Tagged-Time-Resolved data without the dead time typical of TCSPC approach. The 4 independent input channels can be configured for accepting signals from PMTs and/or APDs. The design allows for maximum acquisition of up to 15 million counts/second on each channel simultaneously, for a total of 60 million counts/second. Data are acquired in time-tagged time-resolved (TTTR) mode. Decay times from the picosecond to the second time scales can be resolved (FLIM and PLIM). The card is supported by drivers in Windows 7 and Windows 10, 32- and 64-bit, operating systems. The connection to the computer is through USB2.

Measurements:

- Time-Tagged-Phase-Resolved lifetime measurements
- Single-wavelength and multi-wavelength FLIM/PLIM
- Confocal images
- Anisotropy measurements (steady-state and time-resolved)
- FCS, FCCS, PCH
- Scanning FCS, RICS, N&B
- Stoichiometry
- Single Molecule FRET
- PIE measurements

Features:

- 4-channel simultaneous acquisition
- Direct input from PMTs and APDs
- Photon count rate up to 60 million counts/second
- Dead time 3.125 ns
- Trigger out to synchronize external devices
- Trigger input from external source
- Line and Frame CLK synchronization
- USB2 communication
- Drivers for Windows 7 and Windows 10, 32- and 64-bit, OS

Specifications

Feature	Description
Input Channels	
No. of channels	4 independent channels
Input voltage range	Directly from PMTs and/or APDs (TTL)
Decay times measurement	PLIM and FLIM: from 100 picoseconds to 100 milliseconds
Dead Time (at 80MHz internal or external clock)	3.125 ns
External reference CLK	
External CLK IN	80 MHz, 40 MHz, 20 MHz, 10 MHz TTL
Reference CLK OUT	0.02Hz – 80 MHz Amplitude: + 1.8 V
Synchronization with galvano-scanner	
LINE Scan	Connects to the Line Scan signal from the LSM system
FRAME Scan	Connects to the Frame Scan signal from the LSM system
Data Acquisition (Counts Mode, or Histogram)	
Max windows at 80MHz	4
Raw data size	32 bits
Raw data file structure	Binary File with a header of 256 bytes.
Data Incoming Stream	Up to 140×10^6 counts/sec (35 million counts/sec per channel).
Sampling rate	up to 5MHz
Data handling and storage	Acquisition of raw data for FCS, FCCS, PCH, smFRET. On-line processing or post-processing
Max signal	35×10^6 counts/sec per channel.

Data Acquisition (Photon Mode or Time-Tagged)	
Max windows at 80MHz	4
Raw data size	32 bits
Raw data file structure	Binary File with a header of 256 bytes.
Data Incoming Stream	60×10^6 counts/sec (15×10^6 counts/sec per channel)
Data handling and storage	Acquisition of raw data for FCS, FCCS, PCH, smFRET. On-line processing or post-processing
Sampling rate	up to 80MHz
Max signal in FCS	60×10^6 counts/sec (15×10^6 counts/sec per channel)
Max signal in FLIM	60×10^6 counts/sec (15×10^6 counts/sec per channel)

Data Acquisition (Photon Mode or Time-Tagged-Phase-Resolved, TTPR)	
Max windows at 80MHz	4
Raw data size	32 bits
Raw data file structure	Binary File with a header of 256 bytes.
Data Incoming Stream	60×10^6 counts/sec (15×10^6 counts/sec per channel)
Data handling and storage	Acquisition of raw data for FCS, FCCS, PCH, smFRET. On-line processing or post-processing
Sampling rate	up to 80MHz
Max signal in FCS	60×10^6 counts/sec (15×10^6 counts/sec per channel)
Max signal in FLIM	60×10^6 counts/sec (15×10^6 counts/sec per channel)

Operation	
Architecture	USB2 (Windows 10)
CLK frequency	320 MHz
Clock Managers	4
Power	120/240 V, 40 W
Dimensions (cm)	42.5 (W) x 36 (D) x 10 (H)

FastFLIM is covered by US Patent 8,330,123; other patents are pending.

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