

Becker & Hickl GmbH

Technology Leader in Photon Counting

Product Catalog

2026

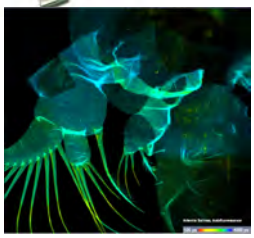
About bh

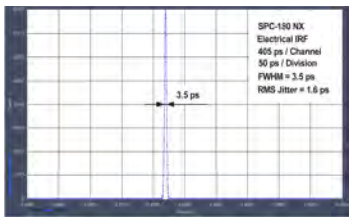
Founded in 1993, Becker & Hickl have introduced a proprietary time-correlated single-photon counting principle that made TCSPC more than 100 times faster than the existing devices. Moreover, bh introduced a multi-dimensional TCSPC process that records the photons not only versus the time in the signal period, but also versus other parameters, such as experiment time, wavelength, or spatial coordinates. The bh devices are designed to record multi-dimensional photon distributions, time-resolved images, sequences of photon distributions, or multi-dimensional time-tag data. The bh TCSPC products are complemented by bh picosecond diode lasers, detector modules, multi-spectral detector assemblies, and experiment control modules. Based on these components Becker & Hickl supply their own confocal fluorescence lifetime laser scanning microscope and FLIM upgrade kits for laser scanning microscopes of various manufacturers. Moreover, bh is supplier of TCSPC and lasers for clinical FLIM devices.

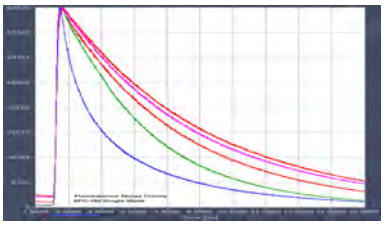
1993	Introduction of multidimensional TCSPC. Introduction of fast TAC/ADC conversion. TCSPC becomes 100 times faster than it was before.
1994	SPC-330 modules. Improved IRF width. Routers for parallel operation of detectors.
1995	SPC-430 modules. Continuous Flow mode for infinite sequential recording. Saturated count rate 8 MHz. First single-molecule applications.
1996	SPC-432 modules. Introduction of Time-Tag recording for single molecule spectroscopy. First version of PML-16 sixteen channel PMT module. SPC-535 modules. First implementation of TCSPC FLIM. First FLIM applications in laser scanning ophthalmology.
1997	SPC-630 modules. Introduction of PCI bus. Modules contain time-tag mode, standard photon distribution modes, and continuous flow mode.
1998	SPC-730 modules. Introduction of TCSPC FLIM. Scan Sync In and Scan Sync out mode. First applications in FLIM microscopy.
1999	SPC-130 TCSPC board. SPC-134 four-channel packages for optical tomography. Saturated sustained count rate 32 MHz.
2000	FLIM upgrade kits for Zeiss LSM 510 NLO microscopes. SPCImage FLIM data analysis software. BHL-600 red and NIR picosecond diode lasers.
2001	SPC-830 modules. For the first time, FLIM and single-molecule techniques were combined in one instrument. DCC-100 detector controller solves the problem of detector overload.
2002	FLIM systems for Leica, Olympus, and Biorad laser scanning microscopes. First multi-spectral FLIM. First demonstration of double-exponential FRET imaging. BDL-405 UV picosecond diode lasers.
2003	BDL-375, 440, and 473 picosecond diode lasers. PML-16 multi-wavelength detector.
2004	Simple-Tau 140 and Simple-Tau 830 compact TCSPC systems. First multi-spectral NDD FLIM systems for multiphoton microscopes.
2005	New PML-16 sixteen channel detector. Internal high-voltage generator, overload shutdown, control via DCC-100. High-efficiency single-mode fiber coupling of BDL picosecond diode lasers. First edition of bh TCSPC Handbook.
2006	High-power CW mode for BDL-SMC picosecond diode lasers.
2007	DCS-120 confocal laser scanning systems. Complete fluorescence-lifetime laser scanning microscopes. DPC-230 16 channel photon correlator. SPC-154 package and SPC-150 modules.
2008	FLIM systems for Zeiss LSM 710 microscopes. Simple-Tau 152 and -154 two and four channel TCSPC systems.
2009	HPM-100-40 GaAsP hybrid detectors. 8-channel parallel TCSPC and TCSPC FLIM systems.
2010	Eight-channel SPAD detector. GaAsP hybrid detectors in all bh FLIM systems. Z stack FLIM. 4th edition of bh TCSPC Handbook.
2011	Phosphorescence Lifetime imaging (PLIM) in DCS-120 and Zeiss LSM 710 FLIM systems. Fluorescence Lifetime-Transient Scanning (FLITS) resolves dynamic effects down to one millisecond. DCS-120 Wideband, DCS-120 Multiphoton, and DCS-120 Macro FLIM systems
2012	DCS-120 electronic alignment, NIR FLIM, FLITS integrated in DCS-120 and LSM 710 FLIM systems, 5th edition of bh TCSPC Handbook.
2013	MW-FLIM and PML-16 GaAsP multi-wavelength detectors, SPC-150N TCSPC module, BDL-SMN and BDS-SM series picosecond diode lasers.
2014	64-bit SPCM software. Megapixel FLIM, Mosaic FLIM, triggered accumulation of time series by mosaic FLIM, Z stack recording by Mosaic FLIM. SPC-160 TCSPC modules. 6th edition of bh TCSPC Handbook.
2015	Imaging of Ca^{2+} transients in neurons. SPC-150NX module, world record in TCSPC time resolution with superconducting NbN detector. Fiber-based TCSPC systems for in vivo applications. W. Becker (ed.), Advanced Time-Correlated Single Photon Counting Applications.
2016	Fast Online FLIM, FLIM with Abberior STED microscopes, SPC-160PCIe, DCC-100PCIe, GVD-120PCIe PCI-Express TCSPC, Detector Control, and Scan Control modules. FLIM for Sutter Instrument MOM microscopes.
2017	Sub-20 ps (FWHM) IRF width with new HPM-100-06 and -07 hybrid detectors. Spatial Mosaic FLIM with DCS-120 confocal and multiphoton FLIM systems. Phasor analysis integrated in SPCImage. SPCM Software controls Ti:Sa laser, AOM, and motorised sample stage. 7th edition of bh TCSPC Handbook.
2018	FASTAC fast-acquisition FLIM system. 25 ps FWHM with fast HPM detectors.
2019	Metabolic FLIM with multiplexed diode lasers. Parallel detection of NADH and FAD fluorescence. SPCImage NG next-generation FLIM analysis software with GPU processing. MLE fit and GPU Processing. 4.4 ps FWHM with single-nanowire SSPD. 8th edition of TCSPC Handbook.
2020	Metabolic FLIM with multiplexed 2p-excitation. Max-Tau 12-Channel TCSPC system. LHB-104 Laser Hub with four ps diode lasers, common single-mode fibre output. Multiphoton FLIM with femtosecond fibre laser.
2021	Ultra-Fast TCSPC/FLIM Modules with fast PCIe Interface: SPC-180NX and SPC-130INX. 9th edition of bh TCSPC Handbook.
2022	4-channel TCSPC / FLIM Module with fast PCIe Interface: SPC-QC-104. BDU-SM series USB-controlled ps diode lasers
2023	6-Channel TCSPC / FLIM module: SPC-QC-106. SPCImage NG with delayed-component fit for FLIO. Combination with phasor plot.
2024	8-Channel TCSPC / FLIM module: SPC-QC-008. Measurement of membrane potential in cells by FLIM.
2025	SPCImage NG with global fit. Detection of fossil bacteria in flint stone. SPCM integrated in Zeiss ZEN software. Tryptophane FLIM.
2026	11th edition of bh TCSPC Handbook. SPC-COMPACT stand-alone TCSPC system.

bh Modular TCSPC Systems - Unsurpassed in Time Resolution





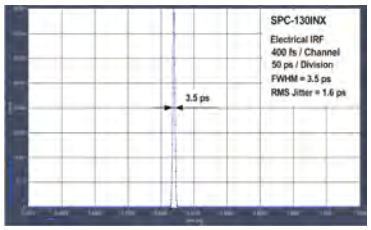


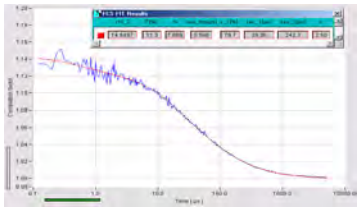


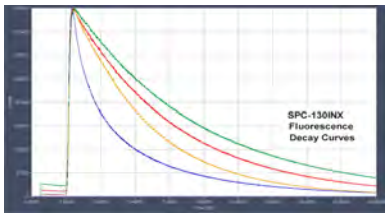
SPC-180N Series: Ultra-High Resolution TCSPC / FLIM Module - Fast PCIe Interface

SPC-180N: Electrical response 6.5 ps FWHM, timing jitter 2.5 ps RMS
SPC-180NX: Electrical response 3.5 ps FWHM, timing jitter 1.5 ps RMS
SPC-180NXX: Electrical response 2.5 ps FWHM, timing jitter 1 ps RMS
Ultra-fast discriminators, 5 GHz input bandwidth
Ultra-fast timing for ultra-fast detectors
Ideal for fast HPMs, SPADs, SSPDs
Minimised low-frequency timing noise
Minimum time channel width 813 fs / 407 fs / 203 fs
Recording-time interval from 0.8 ns to 5 µs, resolved into 4096 time channels
Dead time 80 ns, saturated count rate 12 MHz
Internal histogramming modes and Photon stream (parameter tag) modes
Classic TCSPC, phosphorescence lifetime detection, FCS, Photon Correlation
Multi-wavelength recording, Ultra-fast triggered time series,
Laser-wavelength multiplexing
Part of bh modular FLIM systems
Four-Module packages available





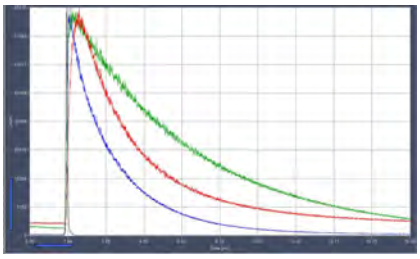




SPC-130IN Series: Ultra-High Resolution TCSPC Module - Fast PCIe Interface

The module for non-FLIM applications
SPC-180N technology
SPC-130IN: Electrical response 6.5 ps FWHM, timing jitter 2.5 ps RMS
SPC-130INX: Electrical response 3.5 ps FWHM, timing jitter 1.5 ps RMS
SPC-130INX: Electrical response 2.5 ps FWHM, timing jitter 1 ps RMS
Ultra-fast discriminators, 5 GHz input bandwidth
Ultra-fast timing for ultra-fast detectors
Ideal for fast HPMs, SPADs, SSPDs
Minimised low-frequency timing noise
Minimum time channel width 813 fs / 407 fs / 203 fs
Recording-time interval from 0.8 ns to 5 µs, resolved into 4096 time channels
Dead time 80 ns, saturated count rate 12 MHz
Internal histogramming modes and Photon stream (parameter tag) modes
Classic TCSPC, phosphorescence lifetime detection, FCS, Photon Correlation
Multi-wavelength recording, Ultra-fast triggered time series,
Laser-wavelength multiplexing
Four-Module packages available

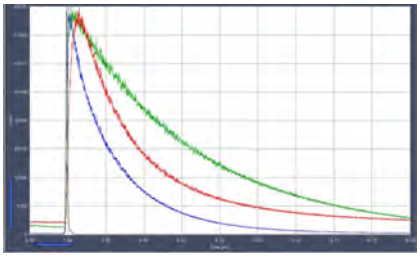




SPC-QC-104: Four / Three Channel TCSPC / FLIM Module with Fast PCIe Interface

Electrical response <30 ps FWHM, timing jitter <16 ps RMS
Three parallel TCSPC/FLIM channels, one synchronisation/reference channel or four parallel absolute timing channels
Adjustable SYNC Delay ±128 ns
Minimum time channel width 4 ps
Low dead time
High peak-count rate, up to 120 MHz
Recording of fluorescence decay and other optical waveforms
FLIM in three parallel channels
Multi-wavelength detection of fluorescence decay and FLIM data
Photon time- and parameter tagging
FCS and photon correlation

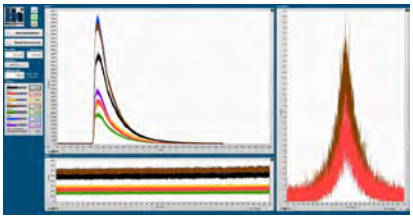




New: SPC-QC-106: Five / Six Channel TCSPC / FLIM Module with Fast PCIe Interface

Electrical response <30 ps FWHM, timing jitter <16 ps RMS
Five parallel TCSPC/FLIM channels, one synchronisation/reference channel or six parallel absolute timing channels
Adjustable SYNC Delay ±128 ns
Minimum time channel width 4 ps
Low dead time
High peak-count rate, up to 120 MHz
Recording of fluorescence decay and other optical waveforms
FLIM in three parallel channels
Multi-wavelength detection of fluorescence decay and FLIM data
Photon time- and parameter tagging
FCS and photon correlation



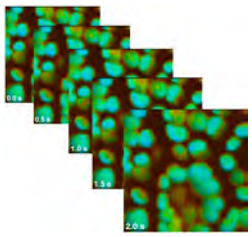


New: SPC-QC-008: 7 / 8 Channel TCSPC / FLIM Module with Fast PCIe Interface

Electrical response <30 ps FWHM, timing jitter <16 ps RMS
7 Parallel TCSPC/FLIM Channels, one Synchronisation/Reference Channel or 8 Parallel Absolute Timing Channels
Minimum time channel width 4 ps
Low dead time
High peak-count rate, up to 400 MHz
Multi-wavelength fluorescence detection, photon correlation

Multi-Channel TCSPC / FLIM Packages





Four Parallel SPC-180N, NX, or NXX modules
Four Parallel SPC-130IN, INX, or INXX modules

High count rate, high data throughput
Multi-dimensional photon distribution mode
Multi-detector / multi-wavelength operation / laser multiplexing operation
Photon stream (parameter tag) mode; buffer size 2 M photons
Triggered MCS (phosphorescence) mode
Synchronisation of channels for photon correlation
High-speed FLIM / PLIM / FLITS for laser scanning microscopes
Single-molecule multi-parameter burst analysis
Unlimited fast sequential recording for fNIRS / DOT systems
Total recordable count rate 24 MHz, saturated count rate 48 MHz
Each channel expandable for up to 8 detectors





Max-Tau TCSPC Systems

Up to 12 SPC-180N family TCSPC/FLIM modules
Highly modular system
User-specific hardware and software configuration
High data transfer rate
High on-line computation power



32-Channel TCSPC System

Up to four SPC-QC-008 TCSPC modules
Fluorescence-decay measurement in 32 parallel channels
Photon correlation between 32 channels
Peak count rate 400 MHz per module
Photon distribution mode
Coincidence mode
Fast photon stream (parameter tag) mode



Power-Tau TCSPC Systems

Up to six TCSPC or measurement control cards in high performance PC
Highly modular systems
User-specific hardware and software configuration
Large system memory for megapixel FLIM applications and DOT
High data transfer rate
High on-line computation power



SPC-Compact

Portable system
8 parallel TCSPC channels
1 Synchronisation channel
High bandwidth input discriminators
Electrical response <30 ps FWHM, timing jitter <16 ps RMS
Peak count rate 400 MHz per channel
Minimum time channel width 4 ps
Operation via touch screen
Readout via USB
Multi-wavelength fluorescence detection
Photon correlation experiments

Simple-Tau Compact TCSPC and TCSPC-FLIM Systems





Simple-Tau 150N, and -160 Compact TCSPC Systems
One SPC-150N, or SPC-160 TCSPC channel
One DCC-100 detector controller
Portable DOT systems
High-Speed FLIM systems
Compatible with bh multispectral FLIM detectors
Part of bh DCS-120 confocal scanning FLIM systems
Part of bh FLIM systems for Zeiss LSM 510 and LSM 710 family
Part of bh NDD FLIM systems for Leica SP2 and SP5 MP
Can be upgraded with additional SPC-150N or measurement control cards

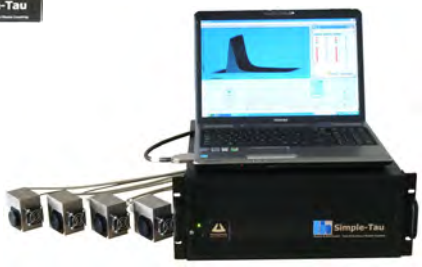
Simple-Tau 152N, and -162 Compact TCSPC Systems
Two parallel SPC-150N, or SPC-160 TCSPC channels
One DCC-100 detector controller
Portable DOT systems
High-Speed FLIM systems
Part of bh DCS-120 confocal scanning FLIM systems
Part of bh FLIM systems for Zeiss LSM 510 and LSM 710 family
Can be upgraded with additional SPC-150N or measurement control cards



Simple-Tau 154N, and -164 Compact TCSPC Systems
Four parallel SPC-150N, or SPC-160 TCSPC channels
Portable DOT systems
Ultra-High-Speed parallel multispectral FLIM systems



Simple-Tau 130-EMN Compact TCSPC Systems
One SPC-130-EMN TCSPC channel
One DCC-100 detector controller
Standard fluorescence lifetime applications
Anti-bunching measurements
Can be upgraded with additional SPC-130-EMN or measurement control cards



Simple-Tau 'Big' Versions
Up to seven TCSPC and measurement control cards
User-specific hardware and software configuration
High speed parallel FLIM systems
Portable DOT systems



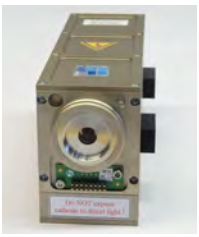
Simple-Tau 'Large Screen' Versions
Combines large screen area with small size of TCSPC system
FLIM and other TCSPC Imaging applications
High-resolution FLIM in combination with 64 bit SPCM software

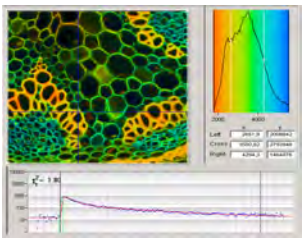


New: Simple-Tau III TCSPC/FLIM Systems
Laptop or standard PC with Thunderbolt-connected extension box
Three slots for measurement and measurement-control cards
SPC-180 series or SPC-QC series TCSPC / FLIM modules
DCC-100PCIe detector controller module
GVD-140 scan controller module
Single or dual-channel FLIM systems
Single, dual or triple-channel TCSPC systems
Operated by SPCM TCSPC/FLIM data acquisition software
Easy to use
Highly portable

TCSPC Detectors and Detector Assemblies

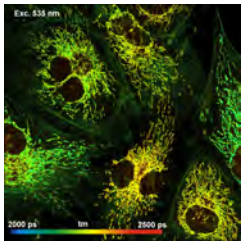
bh guarantee that their TCSPC devices work with any photon counting detector

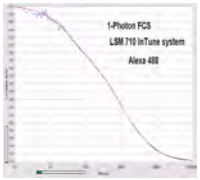




HPM-100-40 and -50 Hybrid Detector Modules

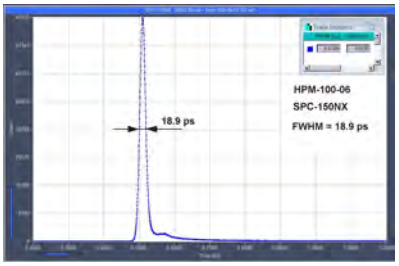
Based on Hamamatsu R10467 hybrid detector tubes
GaAsP versions: 40 % detection efficiency throughout visible spectrum
GaAs versions: 15 % detection efficiency up to 850 nm
GaAsP versions: typ. 120 ps IRF width
No afterpulsing
Internal high-voltage generator, power supply and control via DCC-100, DCU-400 or DCU-800
Active area 3 mm diameter
C-Mount adapter
Adapter to bh DCS-120 confocal scanning FLIM system
Adapter to NDD and BIG port of Zeiss LSM 710 NLO microscopes
Adapter to RLD port of Leica SP2 MP and SP5 MP microscopes
SMA and FC multi-mode fiber adapters



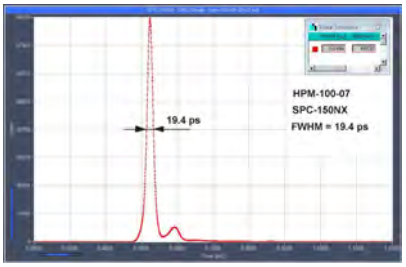
HPM-100-40C and -50C Cooled Hybrid Detector Modules

Based on Hamamatsu R10467 hybrid detector tubes
GaAsP versions: 40 % detection efficiency throughout visible spectrum
GaAs versions: 15 % detection efficiency up to 850 nm
GaAsP versions: typ. 120 ps IRF width
No afterpulsing
Reduced dark count rate by cooling
Internal high-voltage generator, power supply and control via DCC-100, DCU-400 or DCU-800
Active area 3 mm diameter
C-Mount adapter
Adapter to bh DCS-120 confocal scanning FLIM system
Adapter to BIG port of Zeiss LSM 710 NLO microscopes
Adapter to RLD port of Leica SP2 MP and SP5 MP microscopes
SMA and FC multi-mode fiber adapters

HPM-100-06 and -06C Ultra-Fast Hybrid Detector Modules

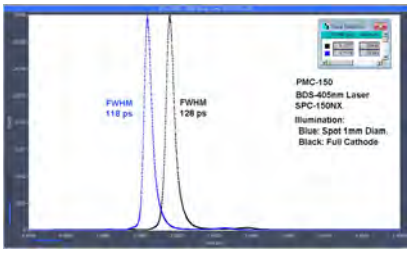
Based on Hamamatsu R10467-06 hybrid detector tubes
Bi-alkali cathode, 220 to 650 nm
Clean TCSPC response, no tails and bumps
< 20 ps IRF width with SPC-150NX, -NXX, SPC-180NX, -NXX
No afterpulsing
Cooled version: HPM-100-06C

HPM-100-07 and -07C Ultra-Fast Hybrid Detector Modules

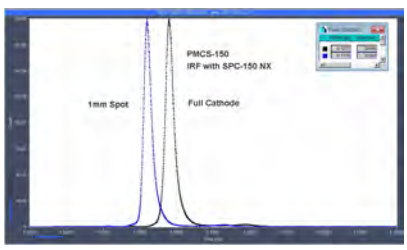
Based on Hamamatsu R10467-07 hybrid detector tubes
Multialkali cathode, 220 to 850 nm
Clean TCSPC response, no tails and bumps
< 20 ps IRF width with SPC-150NX, -NXX, SPC-180NX, -NXX
No afterpulsing
Cooled version: HPM-100-07C





PMC-150 Cooled PMT Modules

Cathode versions for UV to NIR region
Internal PMT voltage generation
IRF width typ. 130 ps
Ultra-stable IRF up to recorded count rates of 5 MHz
Internal preamplifier
Overload shutdown
Power supply and control via DCC-100, DCU-400 or DCU-800
Adapters for Zeiss LSM NDD ports, Zeiss LSM confocal ports, Leica SP2 and SP5 RLD Ports, bh DCS-120 confocal FLIM system
Replaces older PMC-100 detector

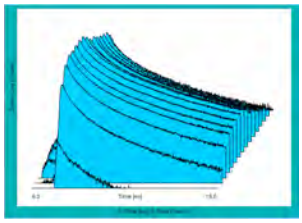



PMCS-150 Cooled PMT Modules

Pre-set gain
Internal preamplifier
Internal overload shutdown
IRF width 130 ps
Ultra-stable IRF up to recorded count rates of 5 MHz
+12 V Power supply

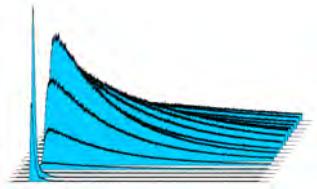
TCSPC Detectors and Detector Assemblies





PML-16 C - 16-Channel TCSPC Detectors

16-channel detector with routing electronics and internal HV power supply
Based on Hamamatsu R5900-L16 multi-anode PMT
Simultaneous detection in 16 channels
Connects directly to all bh SPC modules
Power supply and control via DCC-100, DCU-400 or DCU-800
IRF width typ. value 180 to 240 ps
Part of bh multispectral TCSPC FLIM detectors

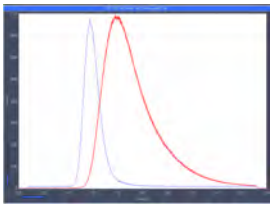
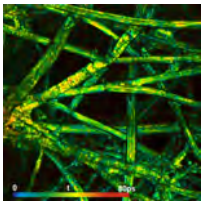
PML-16 GaAsP - 16-Channel TCSPC Detectors

16-channel detector with high-sensitivity GaAsP cathode
Based on Hamamatsu GaAsP multi-anode PMT
Simultaneous detection in 16 channels
Internal Routing electronics and HV power supply
Connects directly to all bh SPC modules
Power supply and control via DCC-100, DCU-400 or DCU-800
IRF width typ. value 280 ps
Part of bh multispectral TCSPC FLIM detectors



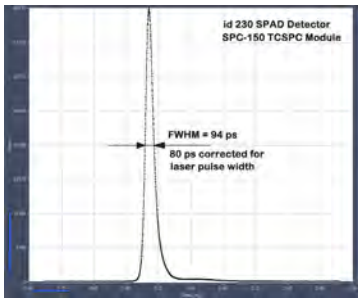
Single-Photon Avalanche Photodiode Modules (SPADs)

Manufacturer: ID Quantique
Direct-coupled and fiber-coupled versions
Active area d = 20 µm and d = 50 µm
Ultra-high efficiency in visible region
IRF width typ. 40 ps, max. 60 ps
Active areas of 20 µm and 50 µm diameter
Stable IRF over count rate
Dark count rates < 7 s^{-1} (ID100-20 ULN) and < 60 s^{-1} (ID100-50 ULN)
Detector count rates up to 20 MHz
Direct-coupled and fiber-coupled versions
Focusing and alignment adapters


ID-Qube-NIR-FR InGaAs IR SPAD Detectors

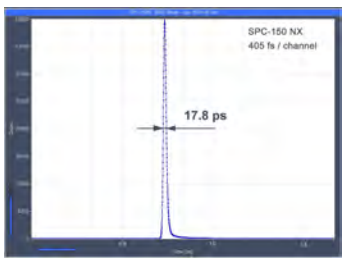
Manufacturer: ID Quantique
Detection from 900 nm to 1700 nm
Quantum efficiency up to 20 %
Continuous operation - no gating required
Compatible with all bh TCSPC devices
IRF width 90 ps FWHM
Fluorescence and phosphorescence decay recording
Photon correlation
FLIM, PLIM





ID-230 InGaAs IR SPAD Detectors

Manufacturer: ID Quantique
Detection from 900 nm to 1700 nm
Quantum efficiency up to 25 %
Extremely low dark count rate - down to 50 – 80 counts / s
Continuous operation - no gating required
Compatible with all bh TCSPC devices
IRF width typ. 90 ps
Fiber coupling, SMA connector
Fluorescence and phosphorescence decay recording
Photon correlation
FLIM, PLIM

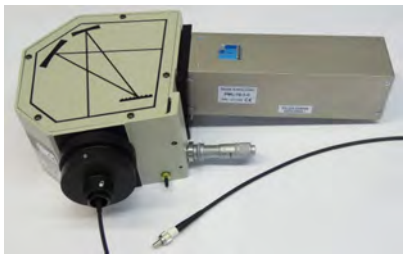


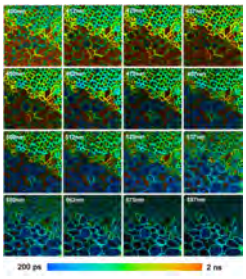


SCONTEL Superconducting NbN Detectors

Manufacturer: SCONTEL, Moscow
Detection from 400 nm to 1700 nm
IRF width down to 17.8 ps FWHM with SPC-150NX
Timing Jitter with SPC-150NX 7.8 ps RMS
(Cooperation with SCONTEL temporarily suspended)

Multi-Spectral TCSPC / FLIM Detectors

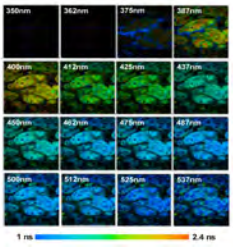




PML-SPEC and PML-SPEC GaAsP Multi-Wavelength Detection Modules

Simultaneous fluorescence decay detection in 16 wavelength channels
SMA 905 or FC fiber adapter
Fiber diameter up to 1 mm
Multi-spectral FLIM for confocal laser scanning microscopes
IRF width 180 ps – 280 ps FWHM
Works with all bh TCSPC modules
Internal high-voltage power supply
Internal routing electronics
Overload shutdown
Full control via DCC-100, DCU-400 or DCU-800
Part of the bh multi-wavelength FLIM systems for laser scanning microscopes
Adapter for DCS-120 confocal scanning FLIM system

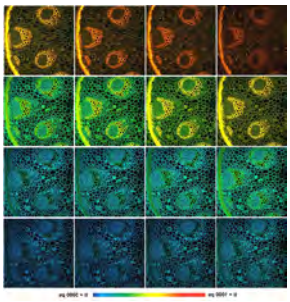




MW FLIM Multi-Spectral FLIM Detection Modules for Multiphoton Microscopes

Multi-spectral FLIM in 16 wavelength channels
Fiber bundle for large area detection and area transformation
Non-descanned (NDD) detection or confocal detection
Adapters for Zeiss, Leica, Olympus, Nikon, bh DCS-120
IRF width 180 ps – 240 ps FWHM
Works with all bh TCSPC modules
Internal high-voltage power supply
Internal routing electronics
Protected by overload shutdown
Shutter for input protection available
Full control via DCC-100, DCU-400 or DCU-800
Part of the bh multi-wavelength FLIM systems for laser scanning microscopes





MW FLIM GaAsP Multi-Spectral NDD FLIM Detection Systems for Multiphoton Microscopes

Multi-spectral FLIM in 16 wavelength channels
High-efficiency GaAsP cathode
Fiber bundle for large area detection and area transformation
Non-descanned (direct) detection or confocal detection
Adapters for Zeiss, Leica, Olympus, bh DCS-120
IRF width 280 ps FWHM
Works with all bh TCSPC modules
Internal high-voltage power supply
Internal routing electronics
Protected by overload shutdown
Shutter for input protection available
Full control via DCC-100, DCU-400 or DCU-800
Part of the bh multi-wavelength FLIM systems for laser scanning microscopes

Opto-Mechanical Detector Components







Detector / Shutter Assemblies for Various PMTs

For NDD ports of multiphoton laser scanning microscopes
Shutter operation via DCC-100, DCU-400 or DCU-800
Overload shutdown of PMT
Input field lens
For bh PMC-150 and HPM-100 modules, Hamamatsu R3809U, Hamamatsu H7422
Part of bh modular FLIM systems





Beamsplitter / Detector Assemblies

For HPM-100, PMC-150, R3809U and H7422 detectors
Dichroic beamsplitters, polarising beamsplitters
Input filter, bandpass filters in front of detectors
Compatible with NDD ports of multiphoton laser scanning microscopes
Part of bh modular FLIM systems





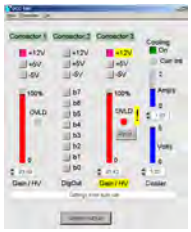


Detectors and Detector Assemblies with Fiber Adapters

For HPM-100, PMC-150, R3809U and H7422 detectors
Input filter, bandpass filters in front of detectors

Detector Electronics





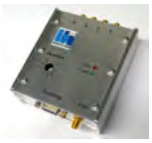
DCC-100PCIe Detector Controller with PCI Express Interface

Power supply for two detectors
Power supply of thermoelectric coolers of detectors
Power supply of preamplifiers
Detector gain control
Detector overload shutdown
Control of shutters or actuators
Control of bh detector / shutter assemblies
Intensity control of bh BDL and BDS ps diode lasers
Integrated in SPCM TCSPC software package
Part of the bh modular FLIM, modular DOT systems
Part of bh Simple-Tau TCSPC systems



DCU-400 / DCU-800
Detector Controller Unit with USB Interface

Power supply for 4 / 8 detectors
Power supply of thermoelectric coolers of detectors
Power supply of preamplifiers
Detector gain control
Detector overload shutdown
Control of shutters or actuators
Control of bh detector / shutter assemblies
Intensity control of bh BDL and BDS ps diode lasers
Integrated in SPCM TCSPC software package
Part of the bh modular FLIM and modular DOT systems
Part of bh TCSPC systems







HRT-41 Four-Channel Router

Connects up to four PMC-150, H7422 or R3809U detectors to one TCSPC channel
All detectors are detecting simultaneously

HRT-81 Eight-Channel Router

Connects up to eight PMC-150, H7422 or R3809U detectors to one TCSPC channel
All detectors are detecting simultaneously

HRT-82 Eight-Channel Router

Connects up to eight SPAD modules to one TCSPC channel
All detectors are detecting simultaneously





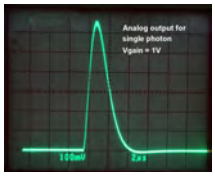
HFAC-26 Preamplifiers

For R3809U MCP PMT, H7422 modules, and other PMTs
Power supply from SPC or DCC module
Overload shutdown in conjunction with DCC-100 controller
Overload thresholds 0.1 µA, 0,3 µA, 1 µA, 2 µA, 3 µA, 10 µA, 100 µA

HFAH-26 Preamplifiers

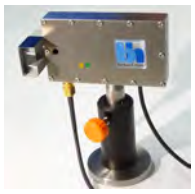
Low-noise
For R3809U MCP PMT, H7422 modules, and other PMTs
Power supply from SPC or DCC module
Overload shutdown in conjunction with DCC-100 controller





HPM-CON-02 Frequency-to-Analog Converter for PMT Pulses

Converts single-photon-pulse signals of photon-counting detectors into an intensity-proportional analog signal
Analog output independent of single-photon pulse amplitude
Inserts directly in detector output pulse line
Provides photon pulses to TCSPC modules and intensity signal to analog electronics
Input pulse amplitude -30 mV to -200 mV, input pulse width down to 500 ps
Input pulse rate up to 10^7 pulses per second
Output voltage range 0 to +4.9 V
Power supply ± 5 V from bh SPC or DCC module





APS-100 TCSPC Synchronisation Module

For synchronisation of TCSPC experiments with Ti:Sapphire lasers
Output amplitude widely independent of laser intensity and laser wavelength
Intensity range 1:100
Power supply from SPC, DCC or DCU module



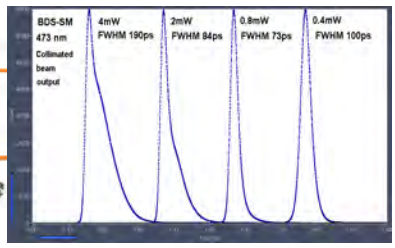


PHD-400 PIN Photodiode Modules

For synchronisation of TCSPC experiments with lasers
Power supply from SPC, DCC or DCU module
Detector area 0.25 mm^2
Current indicator for easy alignment

Picosecond Diode Lasers

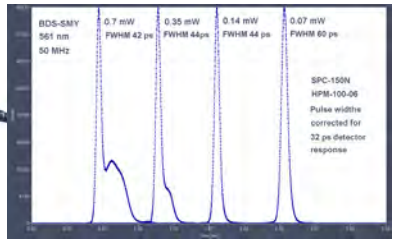




BDS-SM Series Picosecond Diode Lasers

Small-size Module, single-mode output
Dimensions 40 mm x 70 mm x 120 mm (40 mm x 40 mm x 120 mm OEM version)
Wavelengths 375, 405, 445, 473, 488, 515, 640, 685, 785, 1064 nm
Single-Mode free-beam or single-mode fiber output
Fibres permanently attached (pig-tailed) or via fibre coupler
Pulse width down to 40 ps
Pulse repetition rate 20 MHz / 50 MHz / 80 MHz and CW
CW equivalent power up to 1.3 / 3 / 5 mW @ 20 / 50 / 80 MHz
CW mode with up to 50 mW power
Fast ON / OFF / multiplexing capability
Ext. Trigger input (single pulse to 80 MHz), Trigger output
Internal power stabilisation
All electronics integrated, no external driver unit required
Operation from simple +12 V power supply
Part of the bh modular FLIM systems for laser scanning microscopes

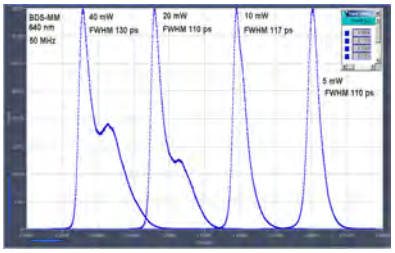




BDS-SMY Series Green / Yellow Picosecond Diode Lasers

Small-size Module, single mode output
Dimensions 40 mm x 70 mm x 120 mm (40 mm x 40 mm x 120 mm OEM version)
Wavelength 532 nm, 561 nm and 594 nm
Single-Mode free-beam or single-mode fiber output
Fibres permanently attached (pig-tailed) or via fibre coupler
Pulse width down to 50 ps
Pulse repetition rate 50 MHz (20 MHz on request)
CW equivalent power up to 0.5 mW @ 50 MHz
Operation from simple +12 V power supply





BDS-MM Series Picosecond Diode Lasers

Small-size Module, multi-mode output
Dimensions 40 mm x 70 mm x 120 mm (40 mm x 40 mm x 120 mm OEM version)
Wavelengths 405, 445, 525, 640, 685, 785, 915 nm
Multi-Mode free-beam or multi-mode fiber output
Pulse width down to 65 ps
Pulse repetition rate 20 MHz and 50 MHz
CW equivalent power up to 50 mW
Fast ON / OFF / multiplexing capability
Ext. Trigger input (single pulse to 50 MHz), Trigger output
Internal power stabilisation
All electronics integrated, no external driver unit required
Operation from simple +12 V power supply



New: BDU-SM Series USB-Controlled Picosecond Diode Lasers

Small-size Module, single-mode output
USB interface
Dimensions 40 mm x 80 mm x 120 mm
Wavelengths 375, 405, 445, 473, 488, 515, 640, 685, 785 nm
Single-Mode free-beam or single-mode fiber output
Fibres permanently attached (pig-tailed) or via fibre coupler
Pulse width down to 40 ps
Pulse repetition rate 20 MHz / 50 MHz / 80 MHz and CW
CW equivalent power up to 1.3 / 3 / 5 mW @ 20 / 50 / 80 MHz
CW mode with up to 20 mW power
Fast ON / OFF / multiplexing capability
Internal power stabilisation
All electronics integrated, no external driver unit required
Power supply from USB port
Part of the bh modular FLIM systems for laser scanning microscopes



Laser Power Supply and Control

Power supply from +12V AC/DC adapter
Key switch, frequency switch, and power control via LSB laser switch module
Laser switch modules for one laser or for two lasers
Interface to DCC-100 and DCU-400, -800 laser/detector controllers
Manual control or Software control from bh SPCM data acquisition software

OEM Operation of Lasers

Lasers can be operated directly from a +12V power supply
Control signals can be applied directly to the laser

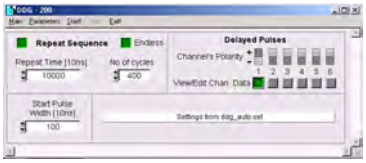


Laser-Hub

Up to 4 diode lasers from BDS family
Flexible wavelength configurations
Wavelength range from 405 to 640 (other on request)
Outputs combined into single beam
Free beam or single-mode fiber output
Fast ON / OFF / Multiplexing
All electronics integrated
No external driver unit
Manual control or control from bh SPCM data acquisition software
Simple +12 V Power Supply from AC/DC adapter

Experiment Control and Connecting Electronics





DDG-220 Digital Delay Generator

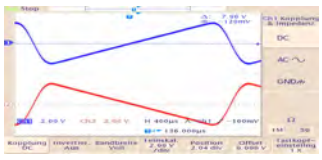
Multiplexing of lasers and routing to TCSPC Modules
Multiplexing rate up to 1 MHz
Laser on/off modulation for PLIM
Non-overlapping laser multiplexing
On-times programmable individually
Part of bh modular DOT systems
Part of bh FLIM / PLIM systems for Zeiss LSM 710 / 780 / 880 family
Integrated in bh SPCM TCSPC instrument control software





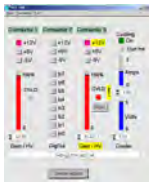
GVD-120 Scan Controller Card
GVD-120PCIe Scan Controller Card
GVD-140PCIe Scan Controller Card

Generation of scan signals for galvanometer scanners and piezo stages
Dual-axis control
Frame scan, line scan, high-stability point operation
Laser beam blanking
Laser multiplexing, synchronously with scan
GVD-120: Two lasers
GVD-140: Four laser
Laser on/off modulation for simultaneous FLIM/PLIM
Linear x scan with cycloid flyback
Sinusoidal x scan option
Extremely high scan rates
Fully digital signal generation
Independent of software response times
Pixel times down to 0.5 µs
Pixel numbers up to 4048 x 4048
Fully integrated in bh SPCM TCSPC / FLIM software
Part of bh DCS-120 confocal scanning systems





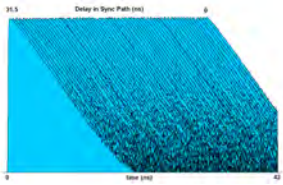




DCC-100PCIe Detector Controllers

Control of two bh TCSPC detectors or two BDS lasers
Intensity control of bh picosecond diode lasers
For details, please see 'Detector Electronics'



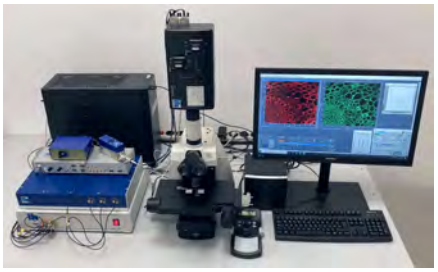


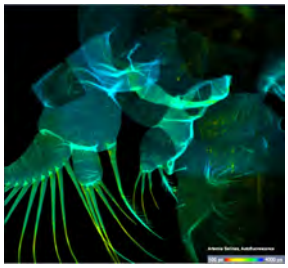
Delay-Box-32N

32 step passive delay line
Delay from 0 to 31.5 ns in 0.5 ns steps
Selection of one of two signal sources
Transmits any signal waveform
Signal bandwidth 1 GHz
No noise, no jitter
No external power supply needed
Settings persist when box is disconnected from USB
Easy adjustment of TCSPC SYNC path length
Control integrated in bh SPCM TCSPC operating software

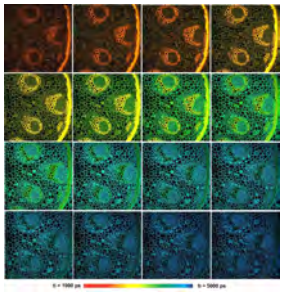


Fluorescence Lifetime Microscopy



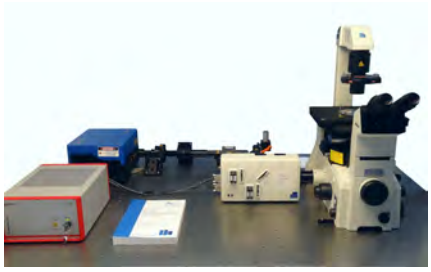


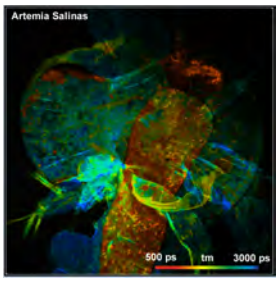




DCS-120
Basic Confocal Scanning FLIM System
Based on bh's 64-bit megapixel FLIM technology

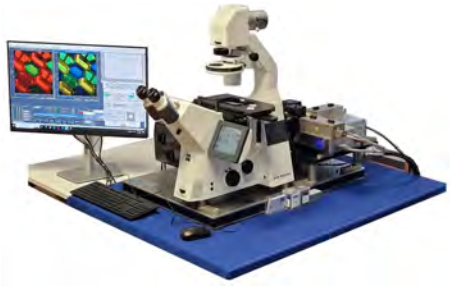
FLIM with up to 2048 x 2048 pixels
Complete Confocal Laser Scanning FLIM microscopes
FLIM upgrade for existing conventional microscopes
Scanning by fast galvanometer mirrors
Two fully confocal detection channels
One or two BDS or BDL-SMN picosecond diode lasers
Laser wavelengths 375, 405, 445, 473, 488, 515, 640, 685, 785 nm
Tuneable excitation by super-continuum laser with AOTF
One or two confocal detection channels, parallel acquisition
Individually selectable pinholes, individually selectable filters
GaAsP hybrid detectors for visible range, GaAs hybrid detectors for NIR range
16-channel multi-wavelength GaAsP detector module
Z-stack FLIM acquisition with Zeiss Axio Observer Z1
Spatial Mosaic FLIM via motorised sample stage (optional)
Simultaneous fluorescence and phosphorescence lifetime imaging (PLIM)
Metabolic Imaging by simultaneous FLIM of NADH and FAD
Simultaneous FLIM / PLIM
Fluorescence lifetime-transient scanning (FLITS)
Ultrafast time-series recording by temporal mosaic FLIM function
Wideband (WB) version, compatible with tuneable lasers
Electronic pinhole alignment
Data Analysis by SPCImage NG
Fast GPU processing
Combination of time-domain analysis and phasor plot

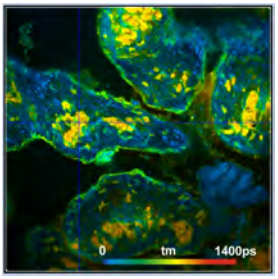




DCS-120 MP Multiphoton FLIM Systems

Multiphoton version of DCS-120 scanning system
Excitation by femtosecond fibre laser
IRF width <20 ps FWHM with HPM-100-06 detectors
Laser control integrated in SPCM data acquisition software
One or two non-descanned detection channels
Clear Images from deep tissue layers
Excellent spatial and temporal resolution
Images up to 2048 x 2048 pixels, 256 time channels
or 1024 x 1024 pixels, 1024 time channels
Full field of view of microscope lens scanned
Optional 16-channel multi-wavelength GaAsP detector module
Z-stack FLIM acquisition with Zeiss Axio Observer Z1
Spatial Mosaic FLIM via motorised sample stage (optional)
Fluorescence lifetime-transient scanning (FLITS)
Ultrafast time-series recording by temporal mosaic FLIM function





DCS-120 DMP Dual-Excitation Multiphoton FLIM Systems

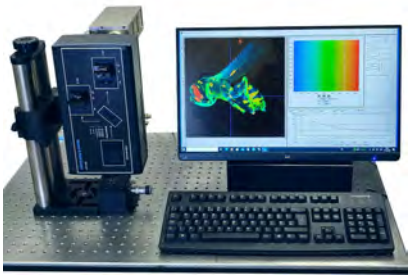
Multiphoton version of DCS-120 scanning system
Excitation by two femtosecond fibre lasers
IRF width <20 ps FWHM with fast HPM-100-06 detectors
IRF width <100 ps FWHM with high-sensitivity HPM-100-40 detectors
Intensity control or laser modulation by AOM
Laser control integrated in SPCM data acquisition software
One or two non-descanned detection channels
Clear Images from deep tissue layers
Excellent spatial and temporal resolution
Images up to 2048 x 2048 pixels, 256 time channels
or 1024 x 1024 pixels, 1024 time channels
Full field of view of microscope lens scanned
Optional 16-channel multi-wavelength GaAsP detector module
Z-stack FLIM acquisition with Zeiss Axio Observer Z1
Spatial Mosaic FLIM via motorised sample stage (optional)
Metabolic Imaging by simultaneous FLIM of NADH and FAD
Simultaneous FLIM / PLIM
Fluorescence lifetime-transient scanning (FLITS)
Ultrafast time-series recording by temporal mosaic FLIM function

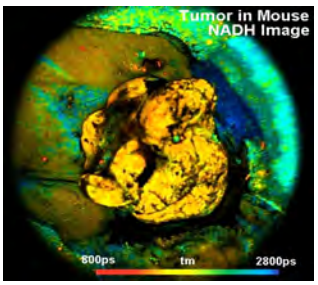


DCS-120 Super MPC Combined Multiphoton and Confocal FLIM System

Multiphoton / Confocal version of DCS-120 scanning system
Tuneable multiphoton / Confocal system
Excitation by fs Ti:Sa Laser / OPO or SHG of fs laser
Non-descanned detection for multiphoton excitation
Confocal detection for excitation by SHG of fs laser
IRF width <20 ps FWHM with fast HPM-100-06 detectors
IRF width <100 ps FWHM with high-sensitivity HPM-100-40 detectors
Intensity control or laser modulation by AOM
Laser control integrated in SPCM data acquisition software
Two non-descanned detection channels
Two confocal detection channels
Excellent spatial and temporal resolution
Images up to 2048 x 2048 pixels, 256 time channels
or 1024 x 1024 pixels, 1024 time channels
Full field of view of microscope lens scanned
Optional 16-channel multi-wavelength GaAsP detector module
Z-stack FLIM acquisition with Zeiss Axio Observer Z1
Spatial Mosaic FLIM via motorised sample stage (optional)
Simultaneous FLIM / PLIM

Fluorescence Lifetime Microscopy

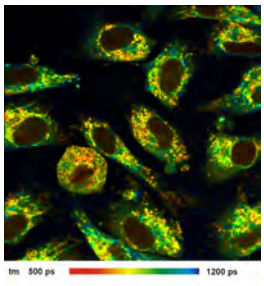


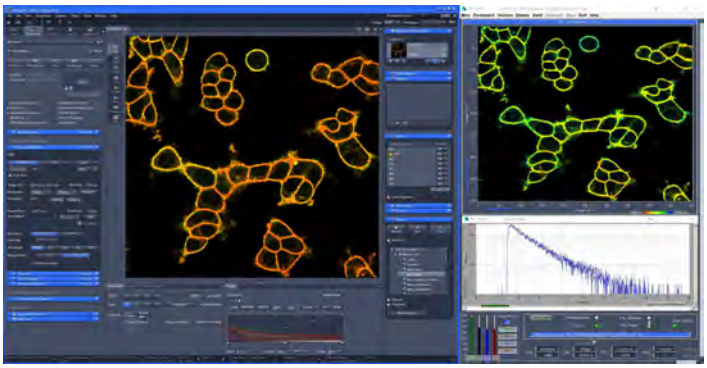


DCS-120 Macro System

FLIM of macroscopic objects
Scan field up to 15 mm diameter
FLIM with up to 2048 x 2048 pixels
Scanning by fast galvanometer mirrors
Two fully confocal detection channels
One or two BDS picosecond diode lasers
Laser wavelengths 375, 405, 445, 473, 488, 515, 640, 685, 785 nm
One or two confocal detection channels, parallel acquisition
Channel separation by dichroic or polarising beamsplitters
Individually selectable pinholes, individually selectable filters
GaAsP hybrid detectors for visible range, GaAs hybrid detectors for NIR range
Optional 16-channel multi-wavelength GaAsP detector module
Spatial Mosaic FLIM via motorised sample stage (optional)
Simultaneous fluorescence and phosphorescence lifetime imaging (FLIM/PLIM)
Metabolic Imaging by simultaneous FLIM of NADH and FAD
Fluorescence lifetime-transient scanning (FLITS)
Ultrafast time-series recording by temporal mosaic FLIM function



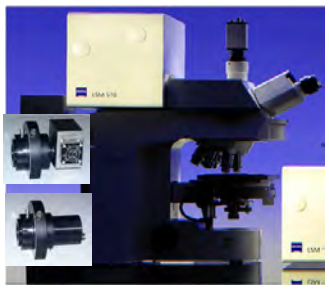


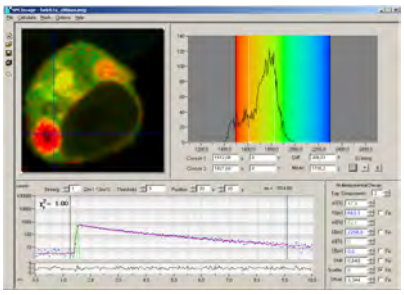


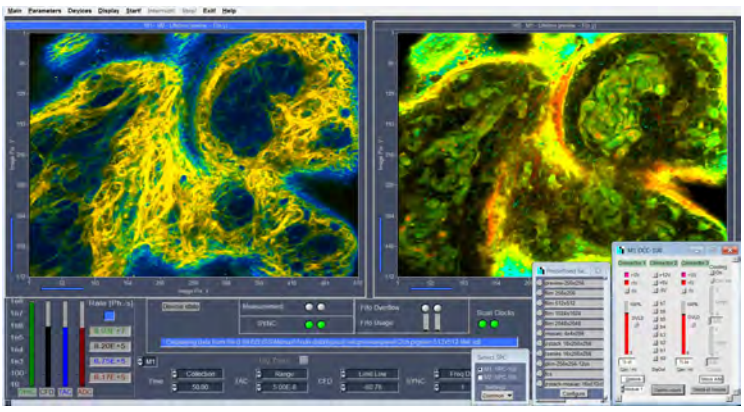
FLIM Systems for Zeiss LSM 880, 980 Microscopes

LSM 880 / 980 NLO Multiphoton Microscopes
LSM 880, LSM 980 Confocal Microscopes
FLIM acquisition integrated in Zeiss ZEN software
FLIM with up to 2048 x 2048 pixels
Multiphoton FLIM, PLIM, multispectral FLIM, FCS
Confocal FLIM, PLIM, multispectral FLIM, FCS
FLIM with bh HPM hybrid detectors or Zeiss BIG-2 detectors
Fast preview mode, both for intensity and lifetime
Mosaic FLIM, Z Stack FLIM, Fast Time-series FLIM
Acquisition by 1, 2, 3 or 4 parallel TCSPC FLIM channels
Simultaneous fluorescence and phosphorescence lifetime imaging (PLIM)
Fluorescence lifetime-transient scanning (FLITS) fully integrated
Ultrafast time-series recording by temporal mosaic FLIM function
Confocal NIR FLIM up to 900 nm detection wavelength
Two-Photon OPO FLIM up to 900 nm detection wavelength
SPCImage NG data analysis
Combination of time-domain and phasor analysis

Please see:
Handbook Modular FLIM Systems for Zeiss LSM 710 / 780 / 880 Family Laser Scanning Microscopes, 7th ed.
FLIM systems for Zeiss LSM 980 Microscopes, Addendum to 7th ed. of handbook



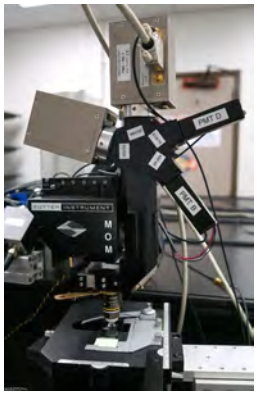


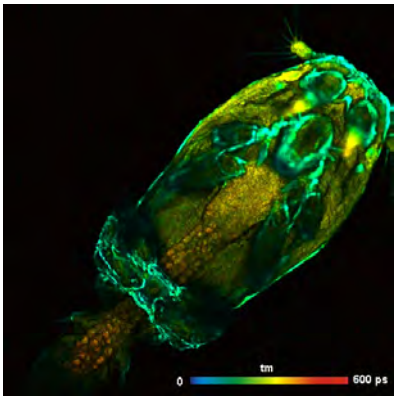


Still available: FLIM Systems for Zeiss LSM 710 NLO, Zeiss LSM 780 NLO Multiphoton Microscopes

FLIM with up to 2048 x 2048 pixels
Multiphoton excitation with non-descanned detection
Detectors connected to Zeiss NDD switch box
Single-wavelength NDD FLIM
Dual-wavelength NDD FLIM
Multi-spectral NDD FLIM
Fast preview mode
Mosaic FLIM
Z Stack FLIM
Fast time-series FLIM
HPM-100-40 hybrid detectors
One or two parallel SPC-180NX TCSPC/FLIM channels
SPCImage NG data analysis
Combination of time-domain and phasor analysis

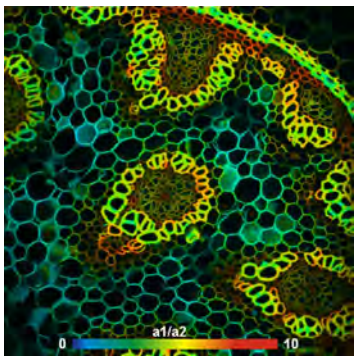
Fluorescence Lifetime Microscopy

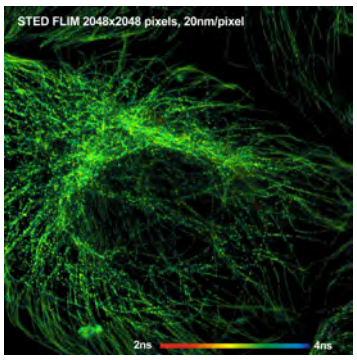




FLIM Systems for Sutter Instruments MOM Microscopes

Up to four parallel FLIM channels
Multiphoton excitation by Ti:Sa laser
Non-descanned detection for deep-tissue imaging
Overload protection of FLIM detectors
Up to 1024 x 1024 pixels, 1024 time channels
High efficiency
Fast acquisition
SPCM Online FLIM function available
Simultaneous FLIM / PLIM



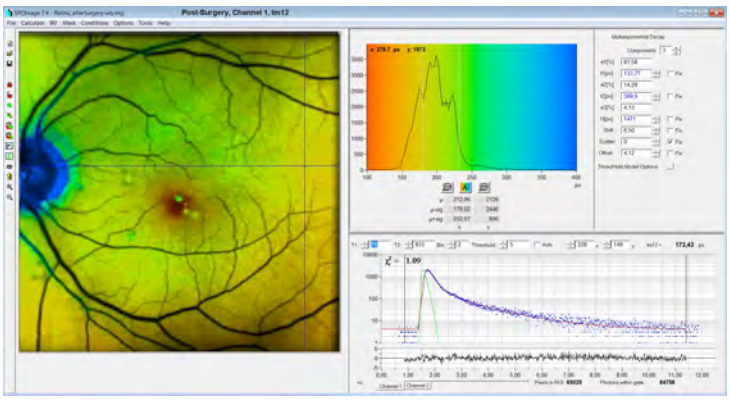


FLIM for other Laser Scanning Systems

bh FLIM systems can be configured for almost any conceivable laser scanning system. They work with galvanometer scanners, polygon scanners, resonance scanners, and motor-driven and piezo-driven scan stages.
Please see bh TCSPC Handbook or contact bh.

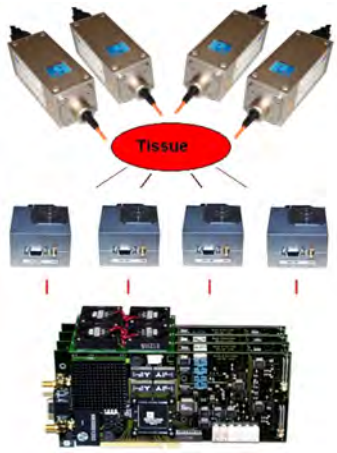
Left: FLIM recorded with Lucid Vivascope, ultra-fast polygon scanner,
STED FLIM recorded with STED microscope of Abberior Systems, Gottingen

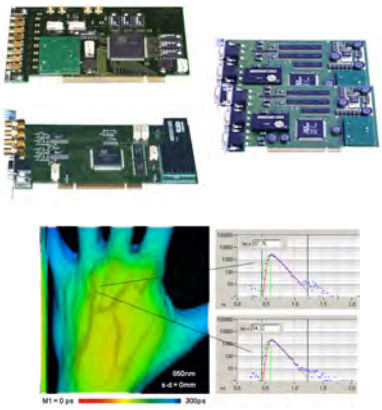
Below: Fluorescence Lifetime Ophthalmoscopy with Heidlberg Engineering FLIO system



If you are looking for a special bh product and can't find it in this catalog please contact bh. The product may be obsolete or 'not recommended for new design'. In this case we will be happy to recommend you a state-of-the-art product that works for your measurement tasks.

TCSPC Systems for Time-Domain Diffuse Optical Tomography



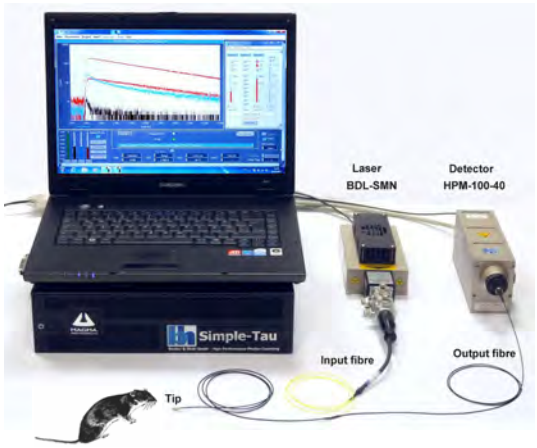


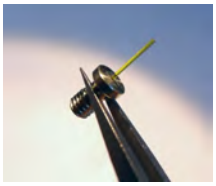
Modular DOT systems

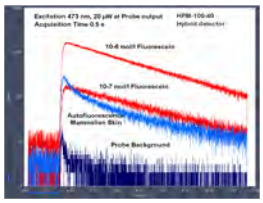
Up to 8 parallel TCSPC channels
Up to 32 detector channels
Up to 8 BDS-MM lasers with wavelength multiplexing
Up to 8 wavelengths multiplexed with super-continuum laser
Recording with multiplexed source position
Time-of -flight distributions for all combinations of wavelength, source, and detection channels
Diffuse correlation in 16 channels
Recording by SPC-134-EMN, SPC-154N, or SPC-164 TCSPC packages
Laser control by DDG-210 digital delay generator
Detector control via DCC-100 cards
Saturated count rates up to 40 MHz
Multiplexing periods of lasers individually programmable
Unlimited sequential recording by continuous flow mode
Acquisition rate up to 20 time-of-flight distributions per second

Non-contact scanning by galvanometer scanner controlled by GVD-120 card

Fiber-Based Fluorescence-Lifetime Systems for *in-vivo* Applications



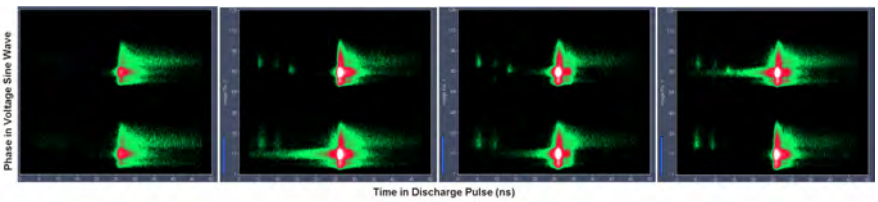




Fiber-based TCSPC system for in-vivo application

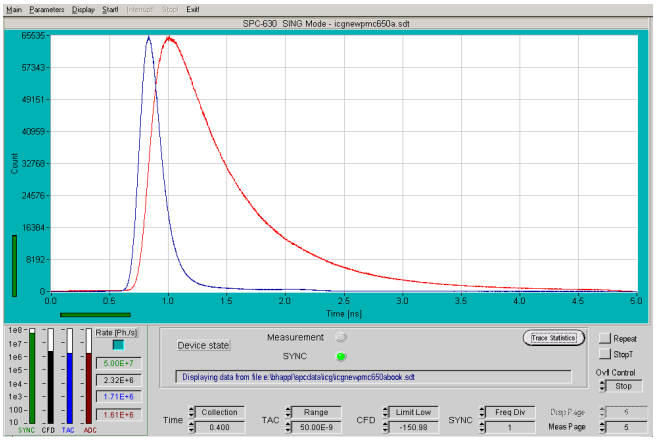
Implantable fiber tip, removable from fiber system
Single mode excitation, multi-mode detection
Excitation by BDL or BDS ps diode lasers
Detection by hybrid detectors or SPAD detectors
Multi-wavelength detector option
Excellent sensitivity
Excellent time resolution
Low background fluorescence
Detection of NADH, FAD, or exogenous fluorophores
Ca^{2+} detection in neuronal tissue
pO2 measurement in live tissue

Systems for Recording Optical Emission from Barrier Discharges

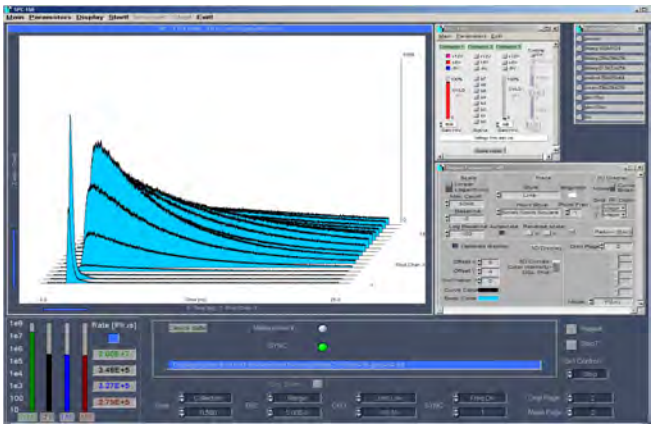


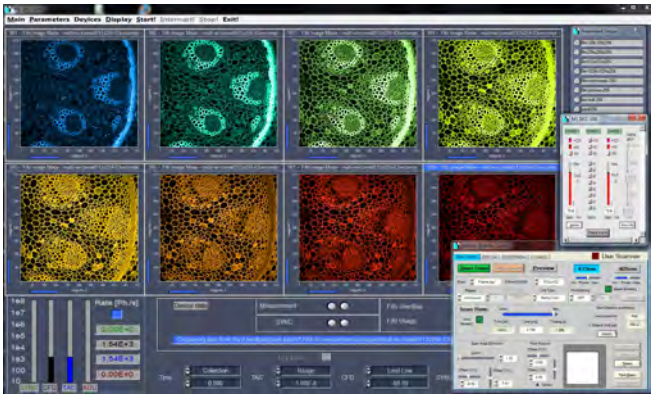
Recording of full spatio- temporal pulse profiles
Multi-dimensional TCSPC process
Sinusoidal discharge voltage, 5 to 15 kHz
Fast galvanometer scanning along discharge gap
Control by GVD-120 scan controller
Fully integrated in SPCM software
Detection of optical signals by one or two detectors
Optional 16-wavelength detector
Recording by one or two parallel SPC-150N TCSPC modules
Online display of data
Please see bh TCSPC Handbook, 9th edition

TCSPC/FLIM Instrument Software







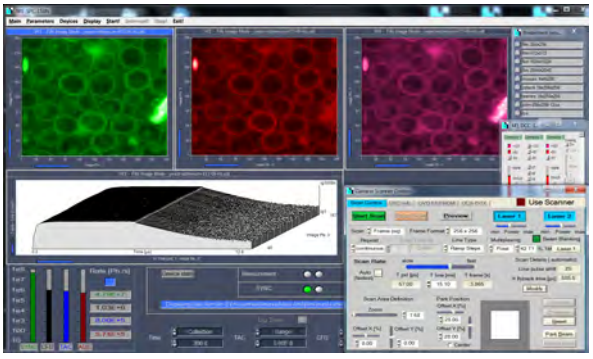


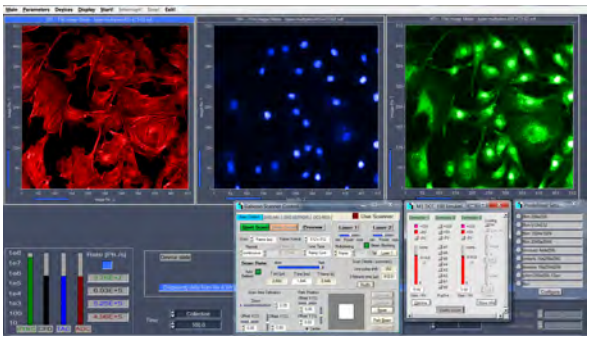
SPCM Data Acquisition Software for all bh TCSPC Modules and DPC-230 Photon Correlator

True 64 bit software for Windows 10 and Windows 11 Megapixel FLIM Technology

Same software for all bh TCSPC modules and DPC-230 card
One software for all operation modes
Full access to all functions of the boards
Configurable for different instrument configurations
Parallel operation of up to four SPC or DPC modules
Online display of images and curves
Online display of lifetime images
Online calculation of FCS, PCH, and MCS traces
Online fit of FCS curves
Cycle function
Page stepping
Autosave functions
Oscilloscope mode
Multi-wavelength fluorescence decay recording
Single and repeat mode
Sequential modes
Imaging modes
Single photon parameter-tag mode
Hardware-accumulation FLIM mode
Software-accumulation (parameter tag) FLIM mode
Multi-wavelength FLIM
Spatial Mosaic FLIM
Temporal mosaic FLIM for accumulation of ultrafast time series
Fluorescence lifetime transient scanning (FLITS)
Simultaneous recording of FLIM and PLIM
Integrated scanner control
Integrated detector control
Integrated laser control for PLIM
Integrated control of Ti:Sa laser and AOM
Integrated control of motorised sample stage
Integrated control of Zeiss Axio Observer Z1 microscope
2D and 3D display modes
Online display of lifetime images
Image display with software gating
Display of multi-wavelength FLIM images
3D Curve mode, colour-intensity display of multi-dimensional data
Saving, loading, and conversion of photon distributions, images, and time-tag data
Loading of instrument configuration via predefined setups
2D and 3D data processing functions
Automatic interaction with SPCImage FLIM data analysis
Runs under Windows 8, Windows 10, and Windows 11

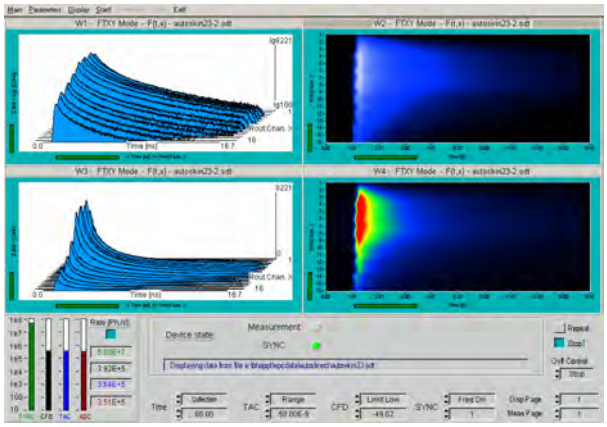
The SPCM software is free. Please downloaded from www.becker-hickl.com.

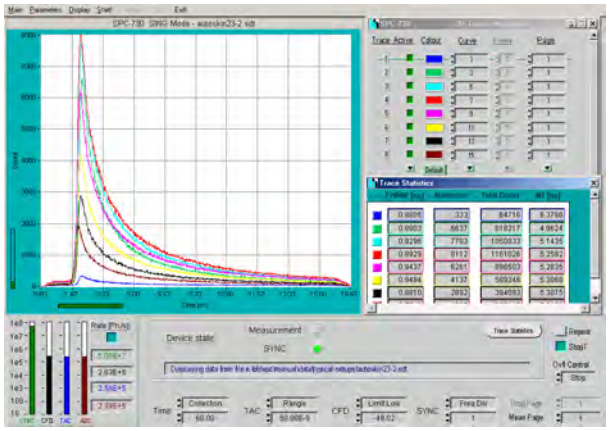


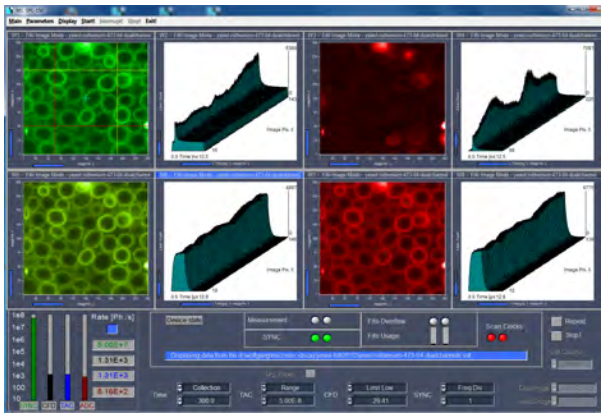


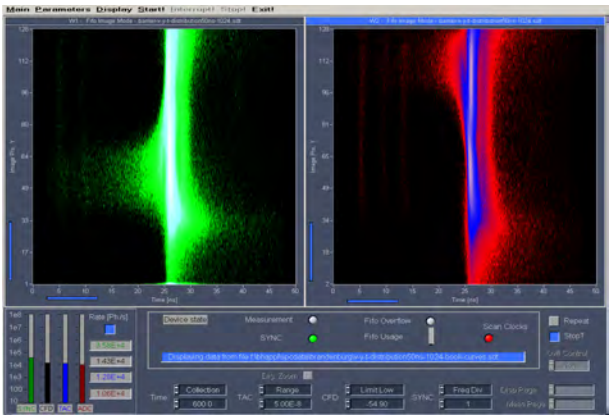
TCSPC/FLIM Instrument Software

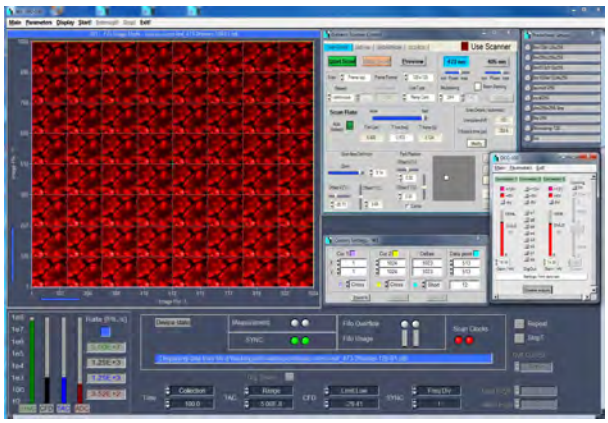
One Software - Multiple Applications

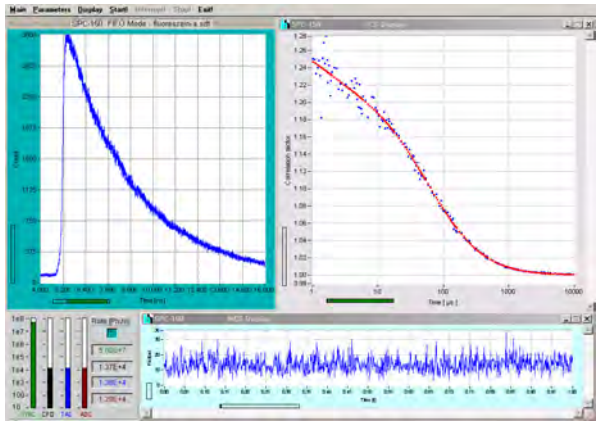


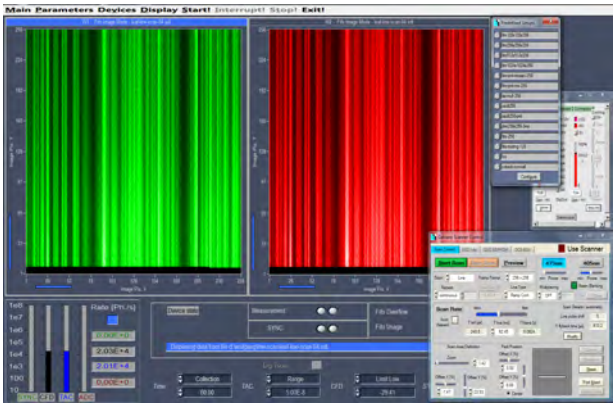


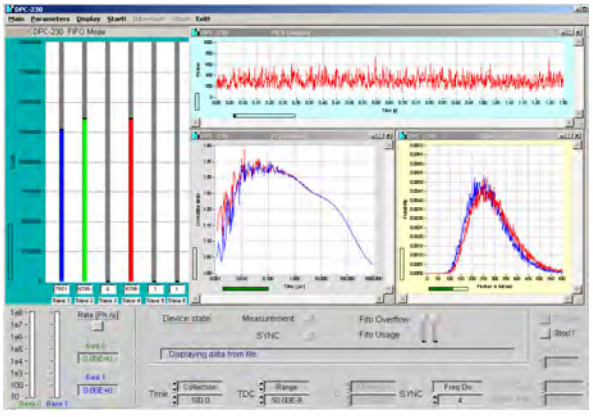






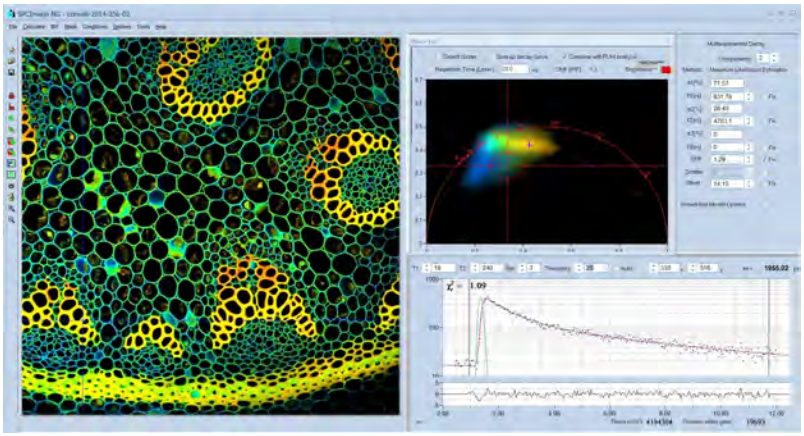






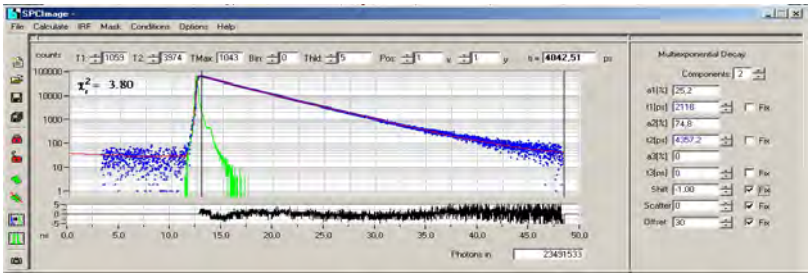
TCSPC Data FLIM Analysis Software

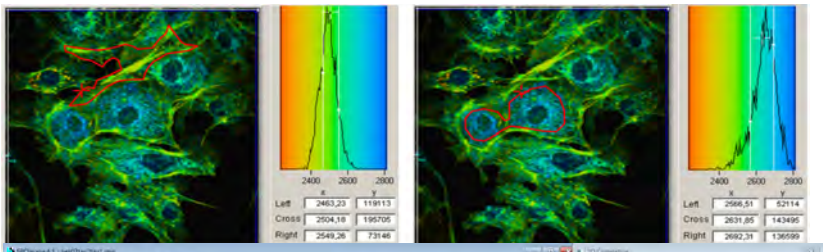
GPU Processing - Precision FLIM Analysis within Seconds



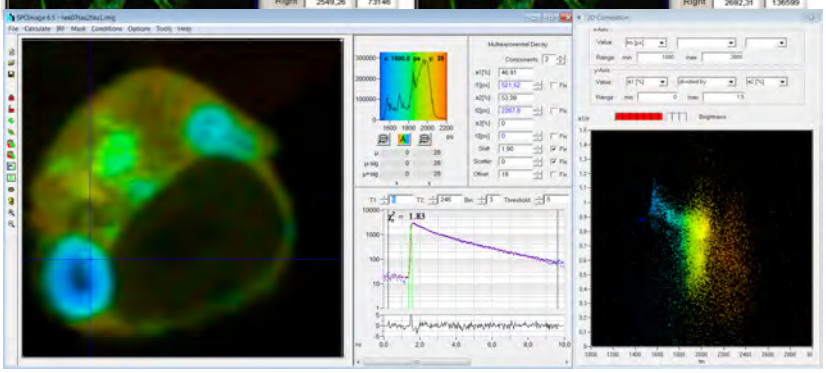
SPCImage NG FLIM Data Analysis Software

Combination of time-domain analysis and phasor analysis
Maximum-likelihood algorithm
GPU processing
Analysis of FLIM data
Analysis of PLIM data
Analysis of single FLIM or PLIM channels
Analysis of multiple FLIM or PLIM channels
Analysis of single-curve fluorescence data
Analysis of single-curve phosphorescence data
Analysis by iterative convolution and fit procedure
Analysis by first moment of photon distribution
Multi-thread calculation procedure
Single, double, and triple-exponential decay models
Incomplete-decay models
Baseline correction
Free or fixed lifetimes of decay components
Pseudo-global analysis
Synthetic, measured or manually defined IRF
Automatic IRF modelling
Extraction of IRF from SHG components in FLIM image
Region-of-interest selection
Image segmentation by phasor plot and 2D histogramming
Single and double-exponential FRET
Display of lifetime images
Display of FRET images
Display of lifetimes, amplitudes, intensities or ratios of parameters
Calculation of FRET efficiencies
Histograms of lifetimes, amplitudes, intensities or ratios of these parameters
Export of lifetime data
Export of images
Direct interaction with SPCM software
Automatic transfer of SPCM data to SPCImage
Transfer of data of selected channels or of all channels
Processing of Megapixel FLIM data
Processing of Mosaic FLIM data
Batch processing of multiple FLIM files
Batch processing of multi-wavelength FLIM data
Batch export of FLIM images and decay data

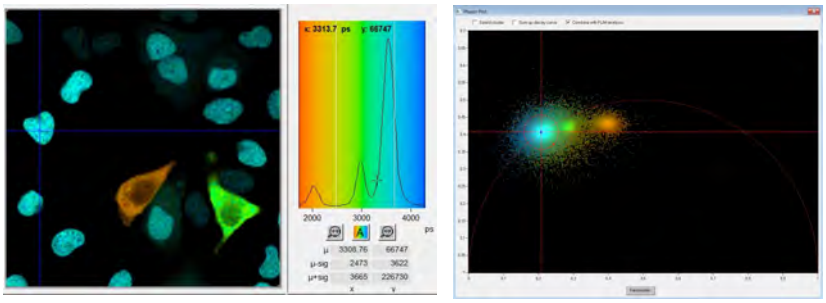




Multiple region of interest definition

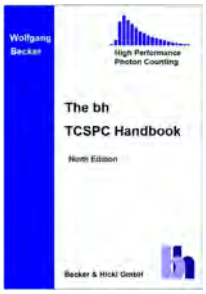


Two-dimensional histograms of decay parameters
Histograms of pixel frequency over two selected parameters of the fluorescence decay
Coloured annotation of pixels in 2D histograms
Back-annotation of 2D parameter ranges in FLIM images



Combination of time-domain analysis with phasor plot
Fourier transform of decay data
Histograms of amplitude and phase of decay data in frequency space
Coloured annotation of pixels in phasor plot
Back-annotation of parameter ranges in FLIM images
Cluster selection in phasor plot
Combination of corresponding decay data in single curve

TCSPC Literature from the Technology Leader



Wolfgang Becker
The bh TCSPC Handbook
11th Edition, January 2026,
1058 pages, 1405 references, 1330 figures
Available from www.becker-hickl.com
Please contact bh for printed copies



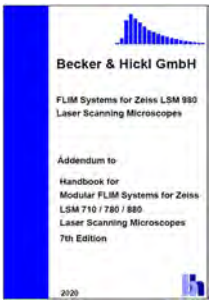
DCS-120 Confocal and Multiphoton FLIM Systems
User handbook
10th Edition, September 2026
453 pages, 601 references, 610 figures
Available from www.becker-hickl.com
Please contact bh for printed copies



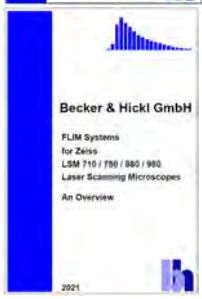
DCS-120 Confocal Scanning Systems
Overview brochure
Edition 2021
44 pages, 85 references, 63 figures
Available from www.becker-hickl.com



Modular FLIM Systems for
Zeiss LSM 710 / 780 / 880 Family
Laser Scanning Microscopes
with appendix for LSM 510 systems
7th edition, November 2017
357 pages, 531 references, 458 figures,
Available from www.becker-hickl.com
Please contact bh for printed copies



FLIM Systems for Zeiss LSM 980 Laser Scanning Microscopes.
Addendum to: Handbook for modular FLIM systems for Zeiss LSM 710 / 780 / 880 family laser scanning microscopes.
February 2020, 24 pages
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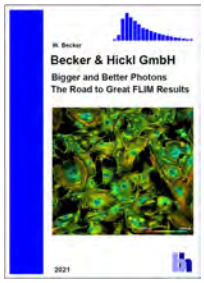
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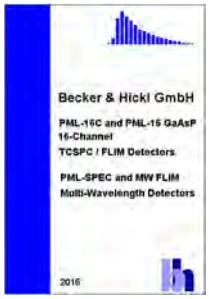
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