Integrated Imaging Systems

from INDEC BioSystems

Complete turn-key imaging systems targeted at specific applications:

Basic Starter — Ratiometric — FRET — TIRF/Single Particle/Object — 4D/5D

INDEC BioSystems presents complete imaging systems directed at target application areas. You are welcome to propose systems based on alternate supported cameras and peripherals.

Our imaging systems are built on our own software, Imaging Workbench 5 and Power Analysis Module, each of which has been used for over ten years in fluorescence imaging laboratories worldwide:

- Imaging Workbench 5 (IW) is a proven program for multichannel fluorescence imaging, with precise control of wavelength switchers and other external equipment during acquisition, and flexible review and data extraction during analysis
- Power Analysis Module (PWR) is a versatile and universal image analysis program for confocal and widefield fluorescence images, now featuring smooth integration with Imaging Workbench.

Our optional expert on-site installation and training will jump-start your experimental progress, and our technical support is prompt and very effective.

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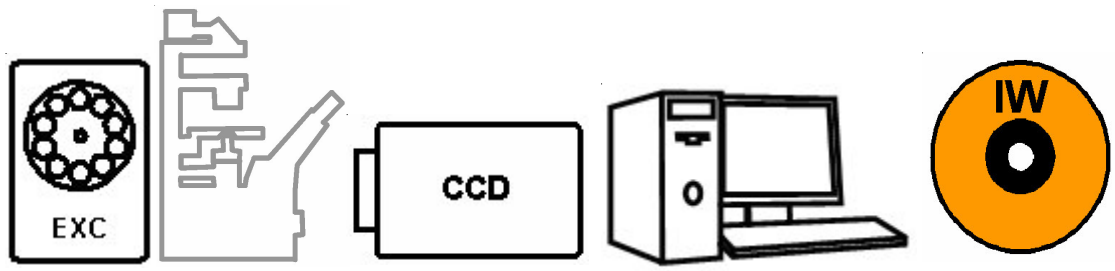
For more information on our software and systems, and for distributors inside and outside the USA, see our Web pages.

FluoVis micro system

The micro System is a basic starter system for general purpose fluorescence time series imaging. It includes a filter wheel for the excitation channel, with the shutter optional for further cost savings. The PixelFly VGA camera provides sensitive,fast and effective imaging; alternate low-price cameras are available upon request. Imaging Workbench provides all acquisition functionality. Note that no fluorescence excitation lamp is included.

Imaging Workbench 5.2 (IW)
PCO PixelFly VGA digital camera; alternate cameras available
Sutter Instruments Lambda 10-B filter wheel, shutter optional, with adapter to microscope
Dell OptiPlex computer with 17" flat panel LCD monitor

The system is an excellent base upon which to add components — as opportunities allow — for more sophisticated applications, such as low light level imaging, FRET, high image rate recording, etc.

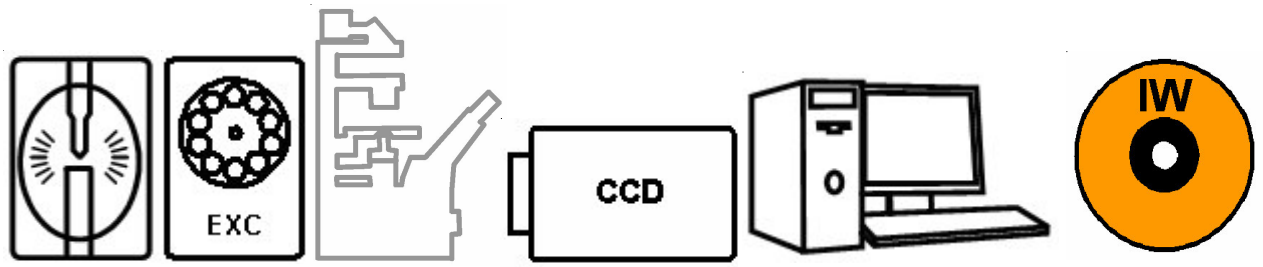


FluoVis Slow Ratio System

The Slow Ratio System is used to visualize and quantify relatively slow to medium rate changes in ion concentration, dynamic fluorescence, cell volume and more, in live preparations using fluorescence and/or bright-field microscopy. The system is specifically designed for cooperative electrophysiology and imaging in one computer.

The system features a 175 W Xe fluorescence excitation illuminator that has proven to be excellent for this application regime. As with the micro System, a choice of CCD cameras is available, and Imaging Workbench provides the acquisition and analysis functionality.

Imaging Workbench 5.2 (IW)
Cooled digital camera: choose between PCO, Hamamatsu, Photometrics and others
Sutter Instruments Lambda LS with 175/300 W xenon ozone-free lamp
Sutter Instruments Lambda 10-B filter wheel, shutter optional, with adapter to microscope
Dell OptiPlex computer with 17" flat panel LCD monitor

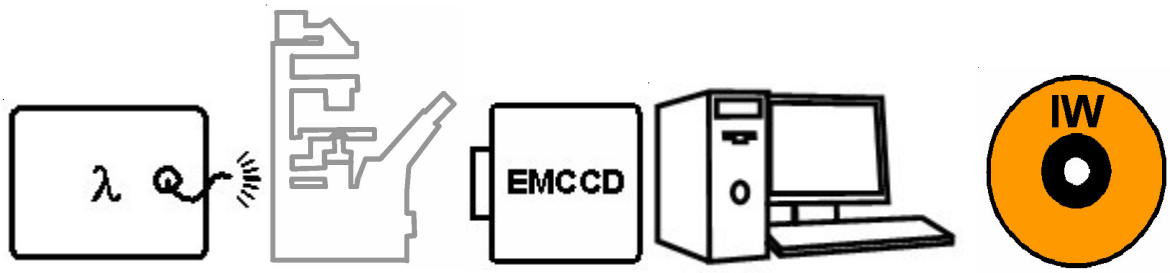


FluoVis Fast Ratio System

The Fast Ratio System allows the fastest excitation light switching, and the highest number of multichannel fluorescence images or ratios per s. The system smoothly integrates cooperative electrophysiology and imaging in one computer.

The enabling technology for this product is the combination of high-speed excitation wavelength switching, and electron-multiplying gain CCD cooled digital (EMCCD) cameras. The camera amplifies the signal on the image sensor itself, thereby increasing signal but not the camera readout noise, and delivers good images at very short exposure times. The monochromator switches the excitation light in 1-3 ms. Imaging Workbench delivers full rated speed of the camera, for fastest imaging performance.

Imaging Workbench 5.2 (IW)
Cooled digital camera with electron multiplying gain (EMCCD); choose between Photometrics, PCO and others
Fast wavelength switcher: choose between Cairn Research, Sutter Instrument and TILL Photonics
Dell Precision computer with 19" flat panel LCD monitor

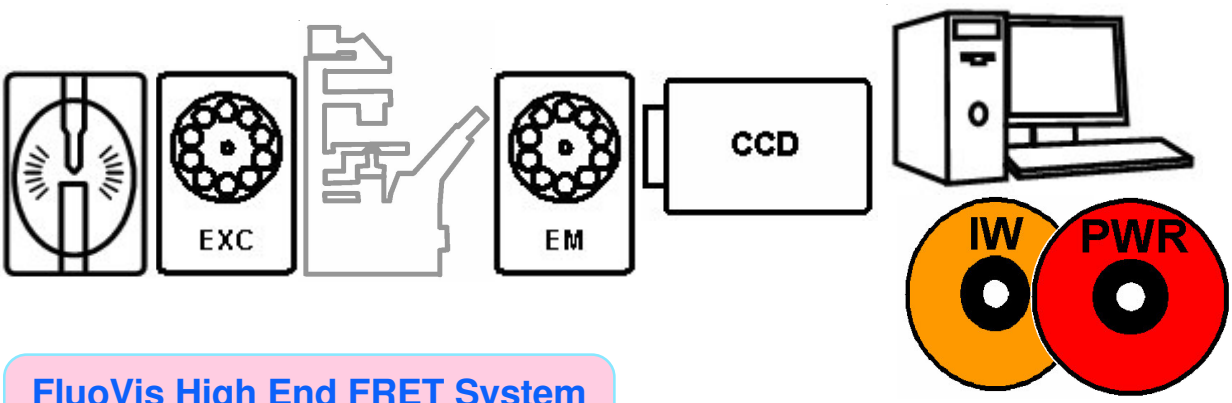


FluoVis Low End FRET System

The Low End FRET System provides a functional and affordable FRET system based on bandpass filter technology.

The system employs a filter wheel for both the excitation and the emission channel. Reasonable separation and alignment of the two images is accomplished thorugh use of optically flat filters. A CCD camera provides effective capture of the images. Imaging Workbench provides all acquisition functionality, and Power Analysis provides the spectral bleed-through subtraction procedure devised by Periasamy et al.

Imaging Workbench 5.2 (IW)
Power Analysis Module (PWR)
Cooled digital CCD camera: choose between Hamamatsu, PCO/Cooke and Photometrics
Sutter Instrument Lambda LS 175/300 W ozone-free xenon lamp, liquid light guide and adapter to microscope
Sutter Instrument Lambda 10-3 with two filter wheels (excitation and emission), shutter and adapter to microscope
Dell OptiPlex computer with 17" flat panel LCD monitor

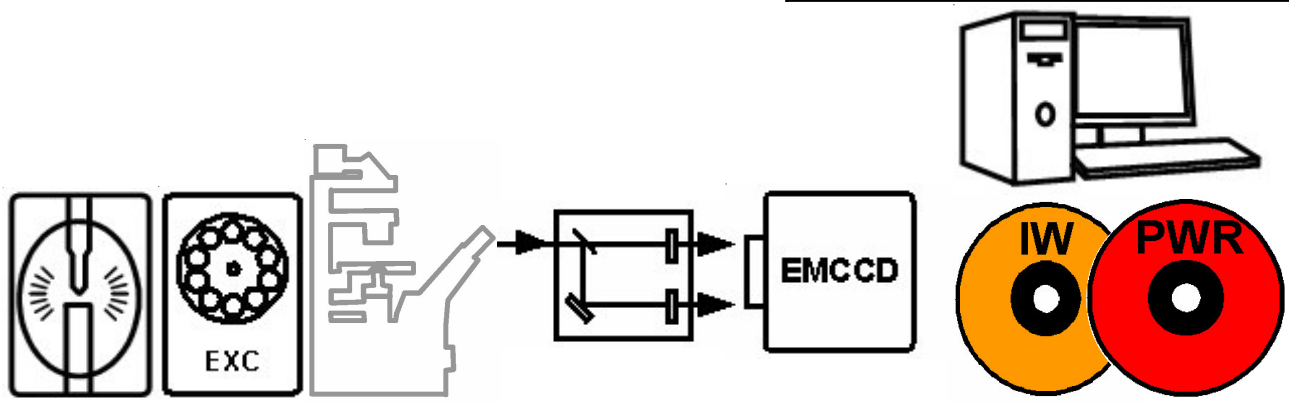


FluoVis High End FRET System

The High End FRET System provides a more streamlined FRET system based on emission image splitter technology and a more sensitive camera.

The system employs a filter wheel for the excitation channel, and an image splitter on the emission channel for highest quality separation and alignment of the two images. An EMCCD camera provides ideal low-light sensitive imaging to minimize overexposure. Imaging Workbench provides all acquisition functionality, and Power Analysis provides the spectral bleed-through subtraction procedure devised by Periasamy et al.

Imaging Workbench 5.2 (IW)
Power Analysis Module (PWR)
Cooled digital camera with electron multiplying gain (EMCCD) camera
Sutter Instrument Lambda LS 175/300 W ozone-free xenon lamp
Sutter Instrument Lambda 10-B filter wheel, shutter optional
Emission image splitter module
Dell Precision computer with 19" flat panel LCD monitor



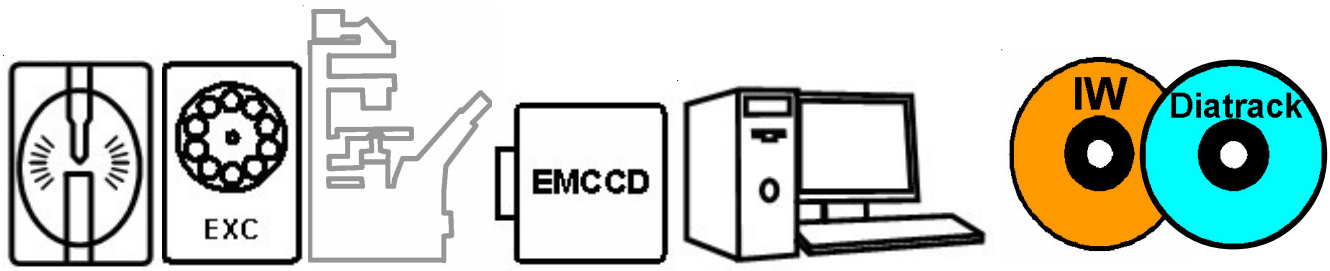
FluoVis TIRF / Single Particle / Object System

The TIRF / Single Particle / Object System is specialized for detection and tracking of single molecules, particles and macroscopic objects in a state of motion.

The system includes an EMCCD camera for detection of objects even under very low-light or high-velocity conditions.

Imaging Workbench provides all acquisition functionality. The acquired data are analyzed by DiaTrack, high-performance and cost-effective 2D and 3D tracking software by Semasopht.

Imaging Workbench 5.2 (IW)
Diatrack 3.0 2D/3D tracking software from Semasopht
Cooled digital camera with electron-multiplying gain (EMCCD)
Sutter Instrument Lambda LS 175/300 W ozone-free xenon lamp
Sutter Instrument Lambda 10-B filter wheel, shutter optional
Dell Precision computer with 19" flat panel LCD monitor



FluoVis 4D / 5D System

The 4D / 5D System allows capture and analysis of 4D (XY images acquired over time T and distance through the preparation Z) and 5D (adding excitation wavelength λ).

Imaging Workbench integrates time series acquisition with focus motor (Z drive) and wavelength control, and optionally with electrophysiology as well.

Power Analysis Module provides 3D display, rendering, sections and colocalization for the data sets.

Imaging Workbench 5.2 (IW)
Power Analysis Module (PWR)
Cooled digital CCD camera
Fast-switching monochromator: choose between TILL Photonics and Cairn Research
Z (focus motor) drive system: choose between several models
Dell Precision computer with 19" flat panel LCD monitor