

Applications

Ion imaging (Ca⁺⁺, pH, ...)
using fura-2, indo-1, BCECF, SNARF, etc.

FRET (in combination with Power Module)

Combined imaging and electrophysiology

Cell volume change measurements

Membrane potential measurements

TIRF

Tracking of particles or objects

Ratiometric and nonratiometric image acquisition and analysis

Multiple dye and several wavelength imaging

Video-rate imaging

Time lapse imaging

Image snap and archive

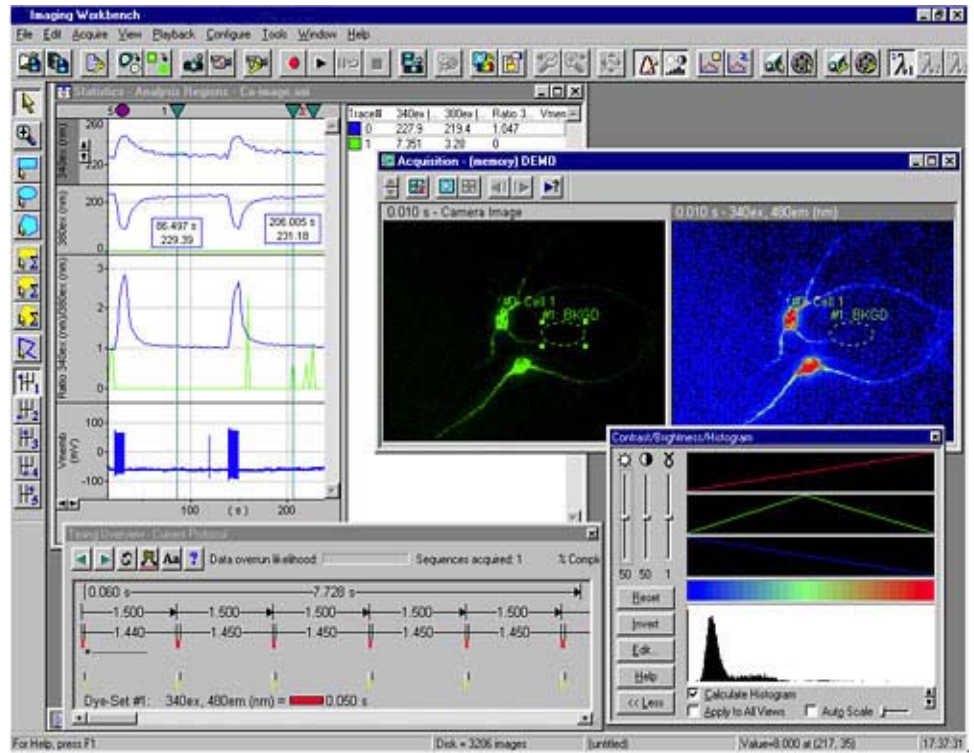
PowerModule v2.0

Add-on software with major new visualization and analysis functionality for IW images

Imaging Workbench 6

Time Series Multiwavelength Fluorescence Imaging of Live Cell Preparations

Imaging Workbench 6 is a proven program for multichannel dynamic fluorescence image acquisition and analysis, with precise control of wavelength switchers and other external equipment during acquisition, and flexible review and data extraction during analysis. IW 6 also seamlessly integrates concurrent electrophysiology and imaging in a single computer.



IW 6 – Key Features

Acquires time series fluorescence images of live cell preparations

Supports CCD, EMCCD and sCMOS digital and video cameras, fast monochromators, filter wheels, shutters, LED illuminators, z-steppers and more, from the major manufacturers

Performs ratiometric and nonratiometric experiments

Calculates intensities, ratios and ion concentrations over time, averaged over user-defined regions

ΔF/F₀, background subtraction and shading correction with full online analyses available during experiments

Continuously updates graphs

Tight cooperation with Molecular Devices pCLAMP 6-10

Analyzes acquired image data online or offline

Exports data to movies, images and spreadsheet files

Windows 7, Vista, XP, 2000 and 98 compatible

FluoVis

IW 6 is an integral part of the FluoVis family of turn-key imaging systems

IW 6 – Unique or Distinctive Features

Intuitive user interface, acclaimed for ease of use

Ideal for users interested in millisecond time-frame events

Support for the highest imaging rates for each camera, matching the manufacturer's specifications

Allows simultaneous acquisition of two Dye-Sets – each can be either a ratio dye (2 wavelengths) or a nonratio dye (up to 3 wavelengths)

See all your images online as you acquire and analyze – e.g. 340 nm, 380 nm and ratio – even pre- and post-background subtraction

The tightest integration available between electrophysiology and imaging, for pCLAMP 6 through 10. This includes synchronized starting and stopping of pCLAMP and IW protocols using wire or software triggering – support for pCLAMP's episodic acquisition (allowing parallel acquisition protocols between pCLAMP and IW) – reading of pCLAMP data into IW's graphs for convenient comparison – coexistence in a single computer

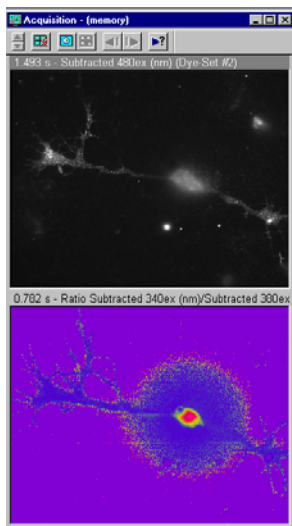
The Real-Time Control Panel allows change to many imaging parameters during acquisition, such as on-the-fly imaging rate, without need to stop and access menus

Analyzes a complete stack of images in one pass

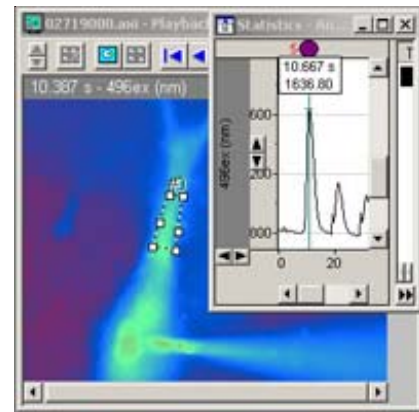
Dynamic Background Subtraction – automatically average the fluorescence over a selected region without cells and subtract that value from the whole image. This is automatically done to each image of a stack (movie) to correct for shifts in background level caused by dyes in solution

A proven, stable product – experiment with confidence

Expert and attentive sales and technical support



Two-dye recording:
FM1-43 (top) and fura-2
ratio (bottom)



Patch-clamped cell, electrode at lower edge. Calcium transient in outlined region is shown in graph as $\Delta F/F_0$

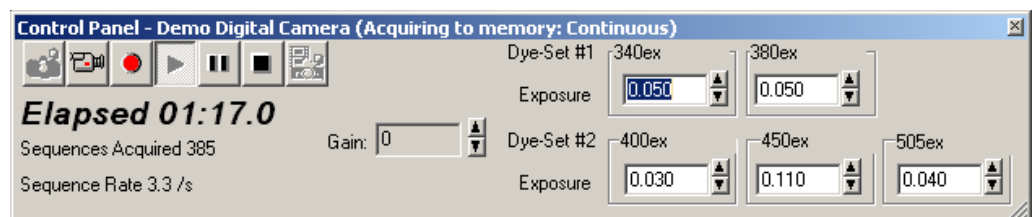
IW 6 – Recently Added Functionality

Image acquisition

- ◆ Support for sCMOS cameras
- ◆ Support for Pulsor LED Controller, which controls third-party LED illumination systems to achieve truly high-speed ratio imaging. Pulsor rapidly alternates LEDs, in perfect synchronization with the camera, to allow IW to capture ratio images at rates of up to hundreds of image pairs per second.
- ◆ Support for Andor Luca, and for new features of Andor iXon EMCCD cameras
- ◆ Support for Carl Zeiss Colibri and CoolLED excitation systems

Image analysis

- ◆ More flexible graph window allows hiding of traces (useful if very many regions are selected) and allows a more user-friendly spreadsheet export format
- ◆ Support for PFRET spectral bleedthrough correction in PowerModule, IW's companion analysis software
- ◆ Support for line profile history export (line profiles with time)



Easy-to-use Control Panel allows most changes "on the fly"

IW 6 – Continuing Development

Ongoing development assures you of more features in the future – with special relevance to biophysics, neurosciences and cell biology. For the latest developments, call us, visit our booth at the Biophysics and Neurosciences Meetings, or visit our Web site at www.indecbiosystems.com.

FluoVis – a family of turn-key imaging systems, customized solutions for your imaging needs

INDEC BioSystems can put together a complete imaging system to meet your requirements and budget. We arrange for demonstrations at your site, with combined evaluation of camera and IW 6.

Example configurations:

FluoVis micro System

A basic starter system for general purpose, versatile, low cost fluorescence imaging:

- ◆ PCO Pixelfly VGA digital camera (alternates available), filter wheel (Sutter Lambda 10-B, without shutter for further cost savings)

FluoVis Slow Ratio System

For slow to medium rate changes in ion concentration:

- ◆ Cooled digital camera, xenon light source (Sutter Lambda LS, EXFO), filter wheel (Sutter Lambda 10-3, Ludl MAC 5000, Cairn Rotor)

FluoVis Fast Ratio System

High sensitivity or high-speed systems:

- ◆ Cooled EMCCD digital camera (Andor, Photometrics, Hamamatsu), fast monochromator (TILL Polychrome, Sutter Lambda DG) or light source (Cairn Optosource)

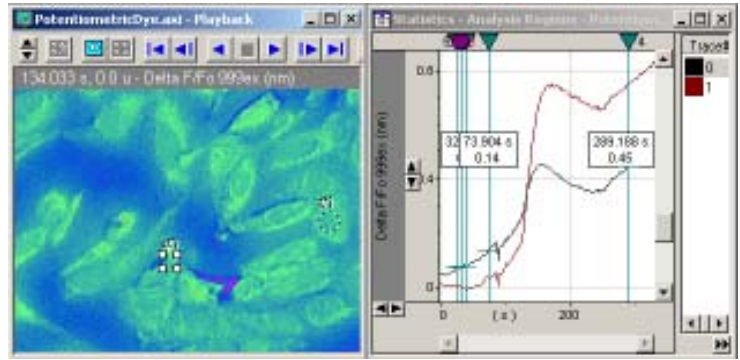
FluoVis High End FRET System

High speed Ca^{++} imaging and reliable FRET imaging with emission image splitter technology:

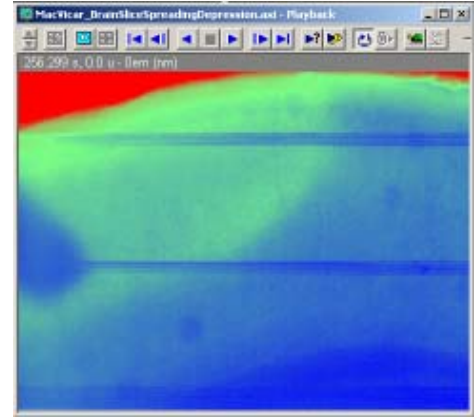
- ◆ Cooled EMCCD digital camera (Andor, Photometrics, Hamamatsu), xenon excitation source (TILL Polychrome, or Cairn Optosource/Sutter Lambda LS with 10-3), emission image splitter (Cairn Optosplit, Photometrics DualView)

For ergonomic experiments!

IW 6 seamlessly integrates electrophysiology and imaging into a single computer. To add imaging to your electrophysiology setup, contact INDEC BioSystems.



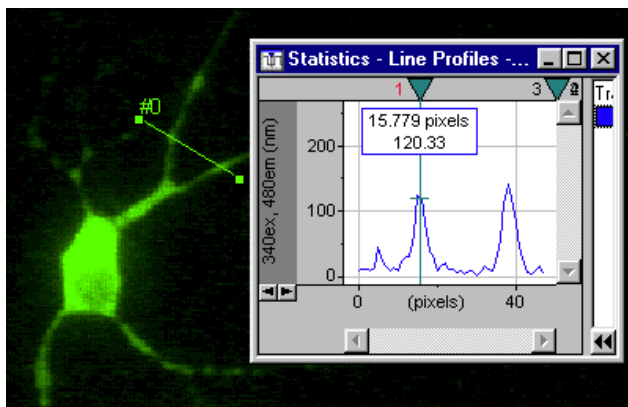
Recordings of DiBac-like potentiometric dye in cultured cells in response to KCl addition



Induced spreading depression in a cortical brain slice, observed as a wave of increased light transmittance

Services of INDEC BioSystems

- Presales applications consultation
- Configuration of components or systems
- Demonstration, either on-site or via Internet conference
- On-site installation and training
- Technical support



Line profile across image

How to Buy IW 6

- ◆ Preserve your investment by upgrading from Imaging Workbench 2, 4 or 5
- ◆ Order IW 6 alone for a new or existing imaging system
- ◆ Purchase IW 6 as part of a FluoVis turn-key imaging system

Discounts are available for upgrades, site licenses and multiple installations

Compatibility

IW 6 supports the following devices:



Hamamatsu ORCA-Flash2.8 and R2



Andor Technology iXon and Luca



Photometrics Evolve and CoolSNAP



PCO Sensicam/Pixelfly Z Steppers



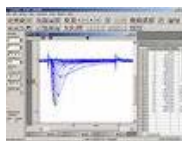
TILL Photonics Polychrome Sutter DG Series Cairn Research Optoscan and OptoLED



Sutter Lambda Series Ludl MACx000 Series Cairn Optosplit Photometrics DualView



Molecular Devices Axopatch, Digidata and pCLAMP



Video Cameras, ICCDs



More Devices

IW 6 also supports many other devices, including LED-based excitation systems from Carl Zeiss and COOLED; other models of cameras from Photometrics, Hamamatsu, Andor and Princeton Instruments; other devices from TILL Photonics, Sutter Instrument, PTI, EXFO, Prior; shutters; and more – call to inquire after your configuration.

Computer Requirements

Windows 7 (32 or 64 Bit): recent PC with 2 GB RAM; XP/2000: Pentium PC with at least 1 GHz CPU, at least 1 GB RAM ; 24- or 32-bit graphics; 1280x1024 display (two monitors are best for combined electrophysiology and imaging); Internet Explorer 8 or later for remote connections; PCI/PCI Express slot for most cameras and for some devices; LPT for older Lambda series, Uniblitz and custom/special devices; USB for dongle and for newer Lambda series; COM for most Z-steppers; IEEE1394 for Firewire cameras.

Technical Support

INDEC BioSystems provides full technical support for your IW software and FluoVis system, including Microsoft Live Meeting, a remote desktop tool that allows our staff to access your imaging computer and control it (if needed) to demonstrate software, perform training, change systems configuration, debug, or allow the user to demonstrate problems.

Users of HEKA electrophysiology systems –
Contact us about imaging-electrophysiology cooperativity

Try a fully functional version of IW 6 on your setup

Try the full IW 6 on your setup. The evaluation version contains all the functionality of the purchased IW 6 but will stop working once the trial period ends. You can evaluate IW 6 with your own imaging equipment to verify its stability, ease of use and performance.

Contact INDEC BioSystems or our distributors, or visit our Web site, to arrange for a trial.

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