

## VisiFluor Imaging System

# VisiFluor High Performance Ca<sup>++</sup> or FRET Imaging

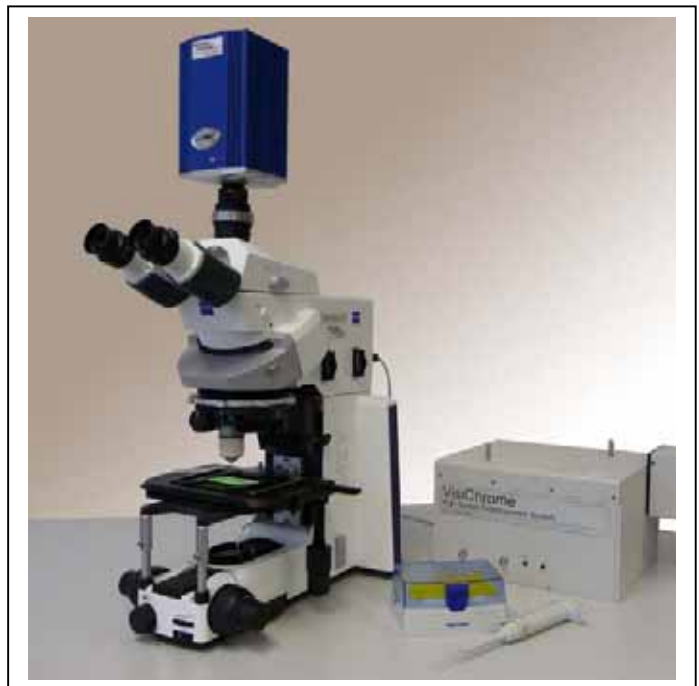
**Integrated Systems for Ratiometric Experiments  
High Precision Measurement of Ion-Concentrations or FRET**

Scientific grade cooled CCD-cameras represent the state-of-the-art detector for spatially resolved calcium-measurements. An integrated measurement system demands three essentials:

- high sensitivity / low noise image sensors
- fast, but accurate wavelength toggling
- perfect synchronization of both components

### Experimental Methods:

- fast change of excitation wavelength via polychromator or filterwheel
- excitation wavelength e.g. Fura-2
- emission wavelength e.g. BCECF or CFP/YFP/FRET
- acquisition of two different emission bands via filterwheel (sequentially) or with our simultaneously with DualView Imager e.g. GFP-FRET or Indo.
- Observation of single wavelength fluorescence of calcium-indicators e.g. Fluo 3, Fluo 4



### VisiFluor system with CoolSnap HQ, VisiChrome polychromator and Zeiss Axio-Examiner

For quick changing of excitation wavelength the VisiChrome polychromator is used. Within less than 3 milliseconds the output is moved from one wavelength to the other. CoolSnap HQ scientific camera series offer free selectable binning factors and sub-region readout modes allowing ratio-rates up to 100 Hz.

## Do Not Waste your Light :

Perform your measurement as long as the signal lasts. The answer to photo-bleaching and toxicity is efficiency and speed. Therefore we offer a number of high-end solutions focusing on the following features:

### Highest Sensitivity

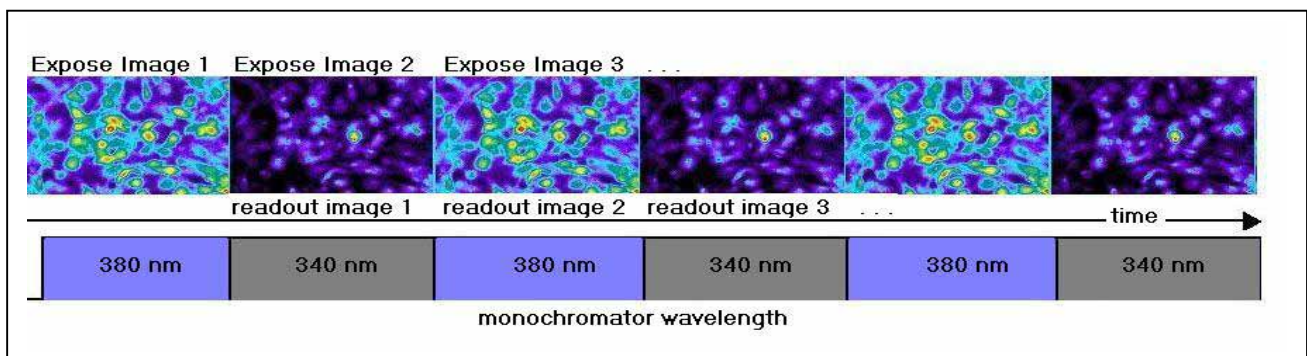
Maximum quantum efficiency (up to 95%), minimum system noise (down to  $4 e^-$ ), minimum dark signal

### Minimum Dead-Time

Using of frame transfer and Interline CCD cameras allows readout and exposure, leading to duty-cycles up to 100%.

### Dual Wavelength Stream

Acquisition runs at full speed, while the excitation wavelength toggles.



FRET-Applications require two measurements at different emission bands, while the excitation is fixed. We offer two solutions:

### DualView-Image

for splitting the image into two parts, each filtered separately. Both partial images are adjusted side by side on the image sensor. Dichroic optics provides maximum efficiency.



### Filterwheels

6 or 10 positions DC-motor for medium time resolution about 50ms / position.

# VisiChrome

## High Speed Polychromatic Illumination System Continuously Tunable Fluorescence Light Source

The VisiChrome polychromatic illumination system is a high speed multi-wavelength illumination system designed to deliver user selected monochromatic light to a microscope via liquid light guide coupler. It allows to change between two wavelength in less than 2 ms.

It uses continuously adjustable entrance and exit slits regulate the bandwidth or intensity.

This is a perfect unit for any time resolved ratio application such as calcium or pH- qualifications.

The VisiChrome polychromator can be controlled by the Visitron imaging software. It supports the following operations:

- automatic scan of any wavelength range
- programming of automatic sequences with toggle of spectral ranges
- precise synchronization of high speed digital camera readout such as frame-transfer or interline
- high speed wavelength change by control of fast and accurate D/A-control board

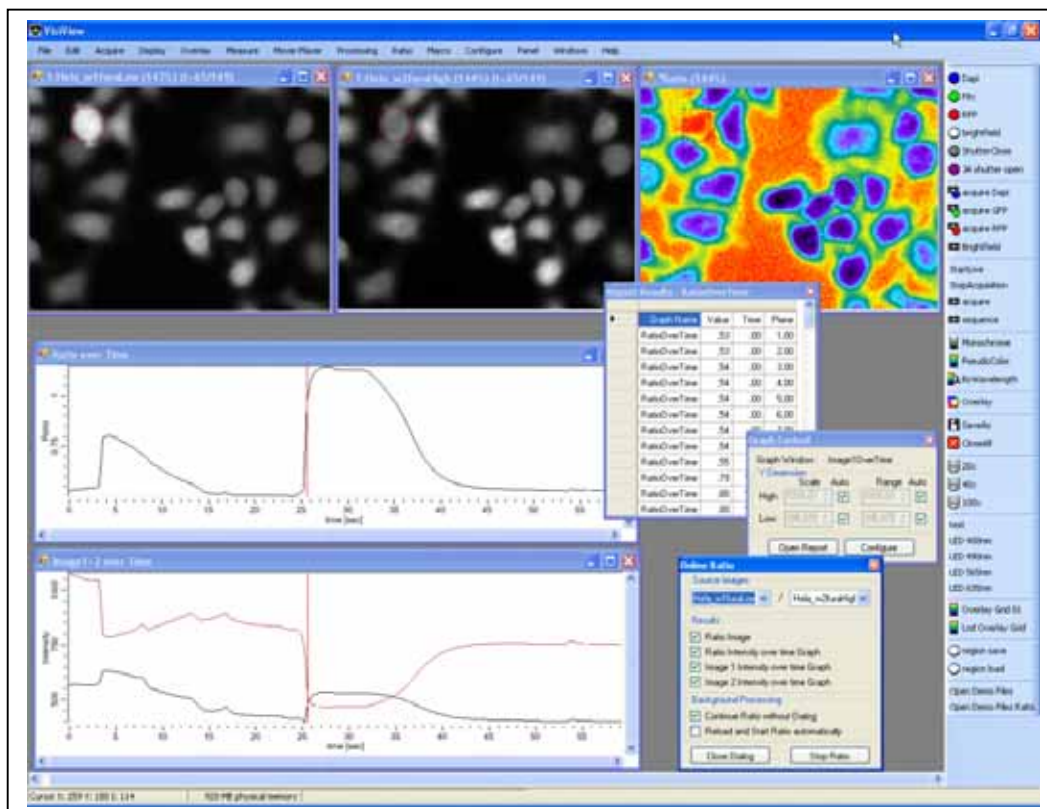


### General Specifications:

- high power Xenon Lamp with „Ultra high point Intensity“
- high stabilized power supply
- Wavelength range about 300 nm up to about 650 nm, variable bandwidth from 1nm - 30 nm
- Wavelength selection by high speed Galvanometer Scanner of less then < 2 ms
- including high speed internal shutter
- Continuously tunable wavelength range

## VisiFluor: The Ratio Software

VisiFluor software is the proven solution for fluorescent image acquisition, automation and Image processing. Unsurpassed versatility allows customized configurations for all demands and budgets.



## VisiFluor Software: List of Features

- Windows XP compatible software
- control of cameras, automatic microscopes, filter wheels, polychromator shutters, xy-stages, focus drives
- flexible control and registration of external devices
- synchronization to electrophysiology devices
- intensity vs time display
- Movie display
- single and multi tiff, stck, nd format
- Direct data exchange to spreadsheet (DDE), e.g. to MS-Excel
- Full support for all components provided by VisiTron Systems