



**NEW**

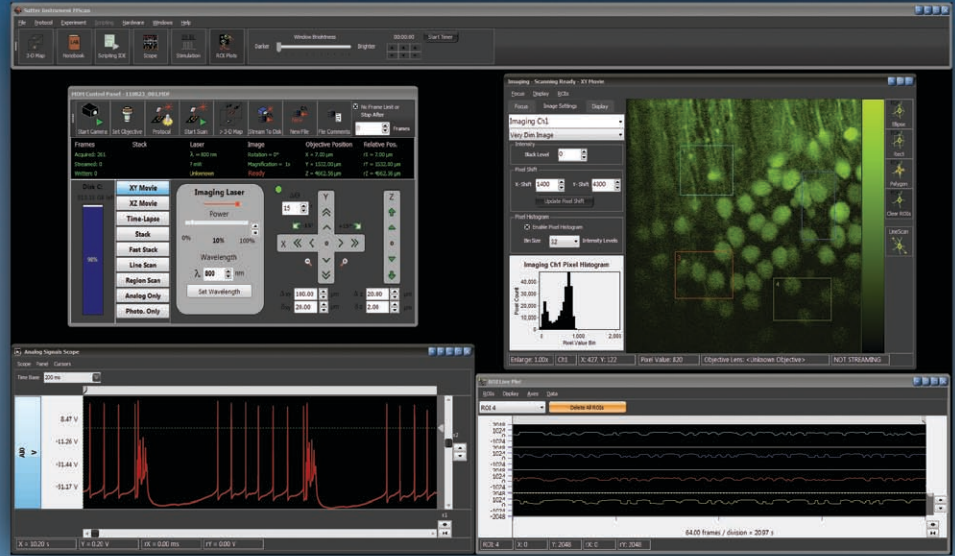
THE MCS IS ESPECIALLY DESIGNED FOR:

LARGE-SCALE, HIGH-RESOLUTION,  
DEEP-TISSUE MAPPING

MULTISPECTRAL, HIGH-SPEED,  
FUNCTIONAL OPTICAL IMAGING

PHOTOSTIMULATION WHILE IMAGING  
THROUGH THE SAME OPTICAL PATHWAY

TWO-PHOTON MICROSCOPY AND  
CONCURRENT ELECTROPHYSIOLOGY  
WITH COMPUTER-CONTROLLED  
PLACEMENT OF ELECTRODES BY  
SUTTER MICROMANIPULATORS



## MCS: MOM COMPUTER SYSTEM AND SOFTWARE

The MOM Computer System (**MCS**) is the software package **MScan**. This program has been designed to seamlessly control two-photon imaging, photostimulation and electrophysiology. While designed exclusively for use with the **MOM**, it is also compatible with other 2-photon platforms. **MOM** microscope. **MCS** is designed to take on complex experiments in deep-tissue intravital imaging. Its intuitive user interface, is easy to use. The **MCS** and **MOM** together form a formidable tool to understand the most complex issues in neuroscience, immunology or oncology. Importantly, you will find in **MCS** the same standard of technical excellence that is the hallmark of all Sutter Instrument products.

The **MScan** software has been developed to simplify the many tasks inherent in a complicated

imaging experiment. **MScan** is extensively multithreaded to take advantage of multicore processors. This ensures reliability and user interface responsiveness. Furthermore, **MScan** is multiuser based to facilitate sharing of a **MOM** microscope with **MCS** among experimenters. Experimenters can then send their data to other workstations for analysis. The **MCS** analysis program **MView** is available for free download on the Sutter Instrument website.

**MCS** includes a Windows 7 workstation, National Instruments data acquisition boards, a Firewire CCD camera and a USB controlled **MPC-200**. The National Instruments boards included are a PCI-6110 board for imaging, a PCIe-6353 board for control of imaging and photostimulation laser power and a PCIe-6321 board for electrophysiology. The package

is a turnkey system as all data acquisition boards and software come installed within the workstation.

An important feature provided in **MScan** is the ability to do bidirectional frame scanning with sub-pixel line offset adjustment. Conventional two-photon frame scanning has involved unidirectional scanning. In these scenarios, data is only recorded when sweeping in one direction across the sample. To increase the rate of data acquisition, it is then necessary to steer the laser beam back to the origin of the scan as quickly as possible to begin the subsequent line. As galvanometric scanners are most taxed and most likely to be damaged during these high-frequency movements, bidirectional scanning both increases the speed at which frames can be recorded and decreases the likelihood of damage to expensive galvanometers.

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