

# C-Focus™ System

## Features

- ▶ Microscope automatic focus drift correction
- ▶ Interchangeable, quick mount adapters
- ▶ 100  $\mu\text{m}$  range of motion
- ▶ Compatible with inverted microscopes
- ▶ Closed loop control
- ▶ **pico** sensor technology

## Typical Applications

- ▶ Maintain constant microscope focus
- ▶ High speed confocal imaging
- ▶ Ultra-fine focus adjustments
- ▶ Drift correction



C-Focus™ nanomanipulator with 5nm optical sensor system removes the effects of microscope focus drift.



*Easy to Use*

Single button to maintain focus.

Single button to move lens into the starting position.

## Compatible Software Packages



**Image-Pro**  
AMS  
Analog motion control

**µManager**  
THE OPEN SOURCE  
MICROSCOPY SOFTWARE  
USB motion control



Examples, tutorial, and  
Nano-Route™ 3D sup-  
plied with Nano-Drive™  
USB and analog  
USB interfaces.



Analog motion control,  
1 or 2 axes.

## Product Description

C-Focus™ systems provide an automatic means to eliminate microscope focus drift over long time periods. Unlike autofocus systems which require use of advanced microscopes with internal focus correction or external devices which track video signals or reflected laser beams, the C-Focus™ simply corrects for microscope focus drift by using a high resolution (5nm) sensor system to measure the lens/sample spacing and make the necessary adjustments. The C-Focus™ system has no effect on standard manual focusing and can be retrofit to any microscope. After focus is established, simply pushing the “focus lock” button starts the C-Focus™ operation. Objective lens motions are accomplished with a

lens nanomanipulator (the Nano-F100S) which is easily connected to the objective lens and microscope with standard threaded adapters. In addition to the unique C-Focus™ operation, lens nanomanipulator motion can also be directly commanded by digital (16-bit USB) or analog signals and can be used for high speed, high resolution confocal imaging and other imaging tasks with demanding focus requirements. The C-Focus™ lens positioning system contains the same proprietary, low noise **pico** position sensors used in the Nano-F100S and is capable of sub-nanometer positioning resolution. The 16-bit USB digital computer interface is included with all C-Focus™ controllers.

## Technical Specifications

Range of motion (Nano-F100S).....	100 $\mu\text{m}$
Resolution.....	0.2 nm
Resonant Frequency .....	500 Hz $\pm 20\%$
Stiffness.....	1.0 N/ $\mu\text{m}$
Recommended max. load*.....	0.5 kg
Body Material .....	Al and Brass
Controller .....	C-Focus™

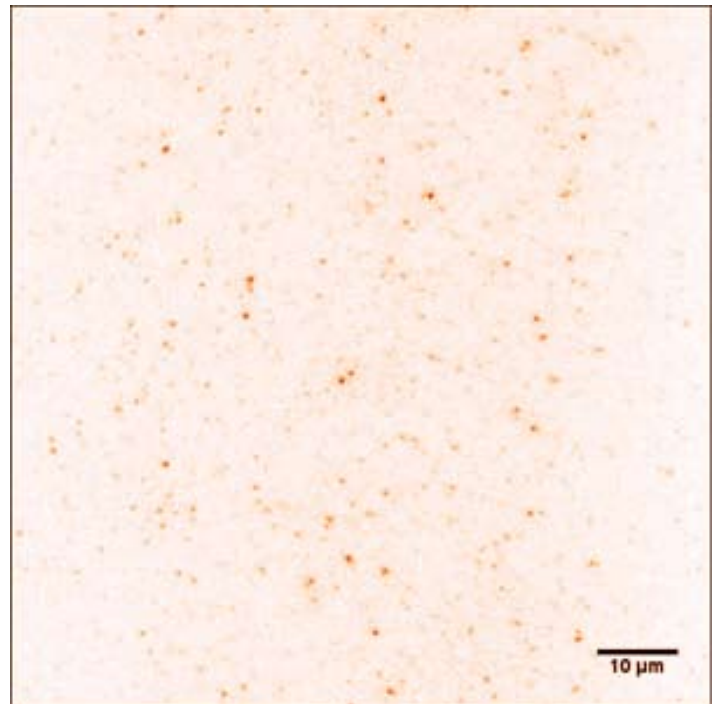
\* Larger load requirements should be discussed with our engineering staff.



*Nano-F100S objective lens nanopositioner is included with the C-Focus™ system. Microscope focus drift is corrected by moving the objective lens in response to feedback from the C-Focus™ sensor system.*

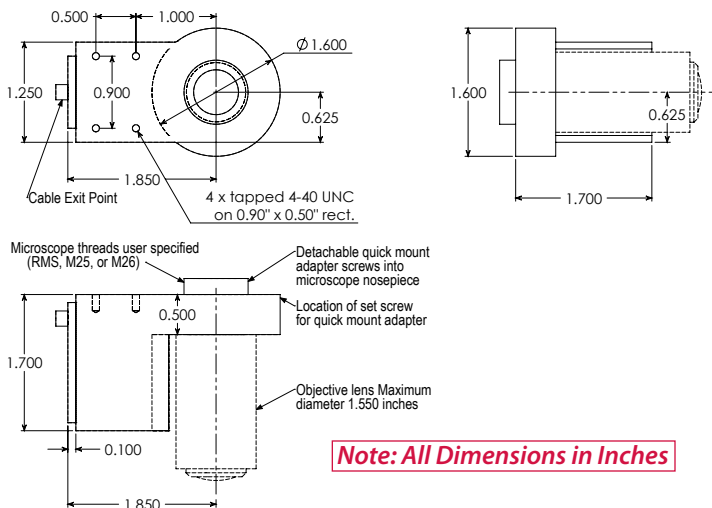


*20 minute exposure without C-Focus™.*



*20 minute exposure with C-Focus™.*

### Nano-F100S



*Both Images:*

*MutS protein imaged with Cy3 via Prism TIRF  
Olympus IX71, 60x 1.45NA Oil, 1.6x magnification*

*Courtesy:*

*Biomolecular & Cellular Dynamics Lab  
Dept of Physics/IBIO, POSTECH South Korea*