

# C-Focus™ System

## Features

- ▶ Microscope automatic focus drift correction
- ▶ Includes lens nanopositioner, sensor & manual microstage
- ▶ 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



### Compatible Software Packages

 <b>Image-Pro</b> AMS USB and analog motion control	 <b>uManager</b> THE OPEN SOURCE MICROSCOPY SOFTWARE USB motion control
 LabVIEW control	 MetaMorph USB and analog motion control

Examples, tutorial, and Nano-Route® 3D supplied with Nano-Drive® USB interfaces.

SLIDEBOOK 5.0  
Analog motion control, 1 or 2 axes.



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



Single button to move lens into the starting position.

## Product Description

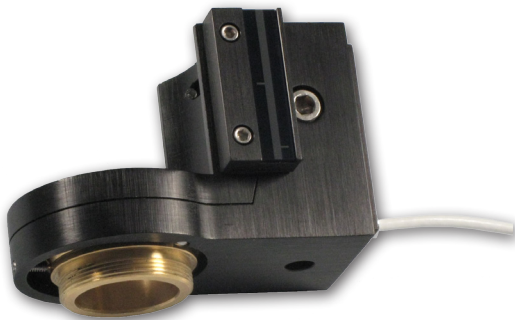
C-Focus™ systems provide an automatic means to eliminate microscope focus drift over long time periods. Unlike autofocus systems which require use of advanced microscopes with internal focus correction or external devices which track video signals or reflected laser beams, the C-Focus™ simply corrects for microscope focus drift via a high resolution sensor system fitted to the included low drift manual microstage. The sensor system measures the lens/sample spacing and makes the necessary adjustments using the lens positioner. 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 nanopositioner (the Nano-F100S) fitted to the nosepiece via a quick mount adapter. In addition to the unique C-Focus™ operation, lens nanopositioner 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 our proprietary, low noise PicoQ® position sensors 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™
Range of motion (MicroStage - XY).....	25 mm
Vernier graduations .....	1 $\mu\text{m}$
C-Focus™ sensor resolution .....	5 $\mu\text{m}$

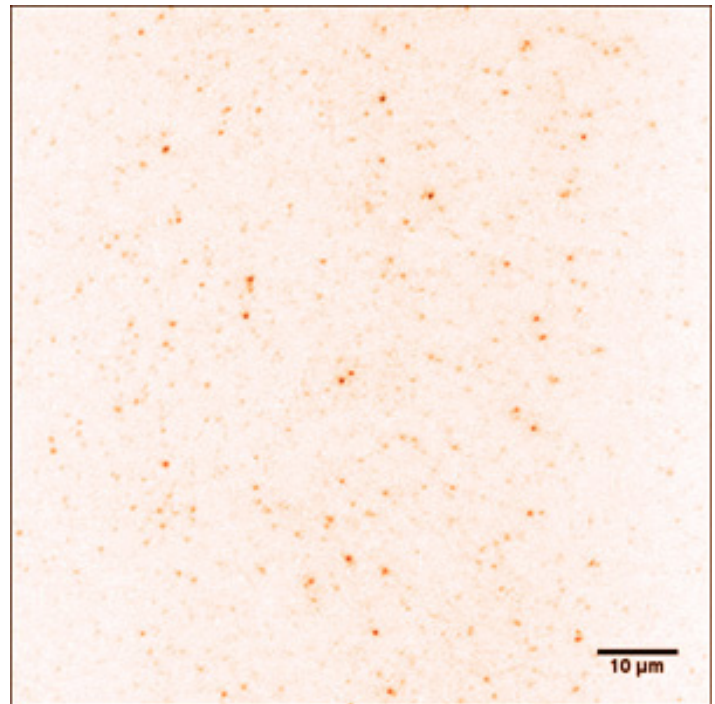
\* Larger load requirements should be discussed with our engineering staff.



*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.*

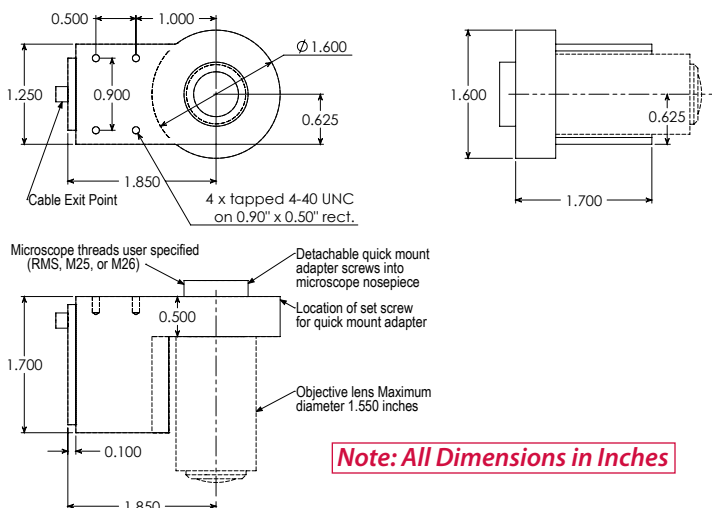


*20 minute exposure without C-Focus™.*



*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*