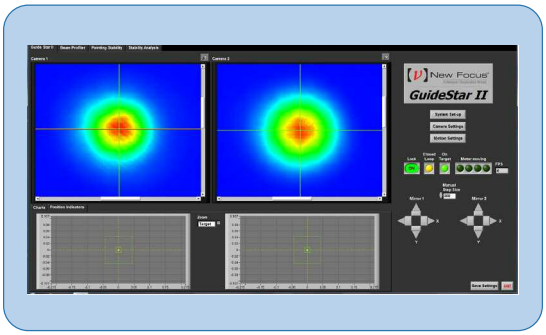
GuideStar™ II

Laser Beam Steering Correction System



- Picomotor Mirror Mount Actuators
- Miniature CMOS Camera Sensors
- Dedicated Controller
- Computer Interface and Display

New Focus™
A Newport Corporation Brand

The GuideStar II provides high-reliability high-precision compensation of laser pointing and position drift. Two independent New Focus™ Picomotor™ actuated motorized mirror mounts provide both manual and active 4-axis control with excellent passive stability. Two miniature position-sensing Cameras provide continuous tracking of both laser beam positions and laser beam profiles. The position data is fed back to the mirror motion using our patented control algorithm (US Patent # 7,528,364 Optical Beam Steering and Sampling Apparatus and Method, 2009), the only technique that completely corrects the laser beam alignment in both x and y and near and farfield. The system is anchored by the small GuideStar™ II Controller and controlled through your own computer with a host of user-friendly and convenient features. Full beam profiles and position and shape date are available live or can be tracked, stored and analyzed. An easy Set-up Menu guides new users through the install and simple settings menus allow complete control of a wide range of camera and beam stabilization parameters including >100:1 dynamic camera exposure time adjustment to optimize profile levels and complete control of beam position target sizes and signal time averaging.

Designed for accuracy, reliability, and ease-of-use, the GuideStar™ II System is the answer to laser beam drift correction for the most demanding laser applications.

HIGHLIGHTS

- Guarantees critical alignment of complex systems
- High precision control with outstanding intrinsic stability
- Complete position, pointing and profile tracking
- User friendly and flexible intelligent position sensing that never mis-steers the beam

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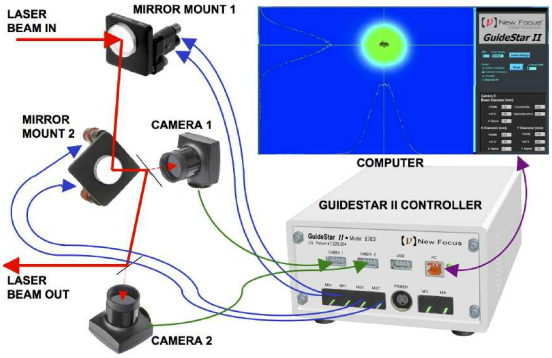
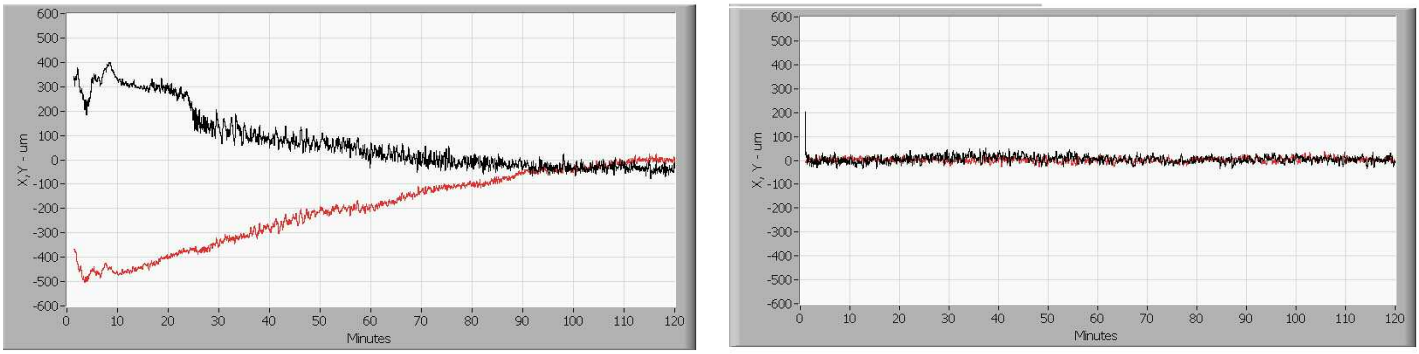
Setting up the GuideStar II Laser Beam Drift Correction System is easy. The 8783 controller is the heart of the system. Simply connect any two of our 8807 picomotor mirror mounts to the RJ-22 motor ports, two model 8784 miniature cameras to their USB ports and your Windows computer to its USB port. The software is loaded from the install DVD and ready to run. A simple set-up menu leads you through making sure the connections are correct and the algorithm is optimized. Push Lock and you are done.





Example: 1 kHz Ultrafast Ti:sapphire Amplifier warm-up, free-running (left) versus with GuideStar II (right).

GuideStar II System Specifications*
Laser
Laser Wavelength: 355 nm - 1200 nm
Laser Repetition Rate: >500 Hz** to CW
Laser Beam Size: <10 mm diameter
Detected Power Required: <1 mW
Beam Position Control
Beam Pointing Adjustment Range: +/-3 degrees, +/-50 mrad
Minimum Pointing Step Size: <1 μrad
Response Time: <10 seconds
Refresh rate for beam profile and display: >3 Hz

*Specifications are subject to change.
**Low repetition rate external trigger available on request. Contact New Focus for more information.

GuideStar II System Components
GuideStar II Controller Model 8783
USB connections to Cameras and Computer
RJ-22 connections to Picomotor Mirror Mounts
GuideStar II Camera Sensor Model 8784 (two per system)
Image Size: >10 mm diameter
Beam Position Resolution: <1 μm
Picomotor Mirror Mounts Model 8807* (two per system)
*Alternate Model #s: 8809, 8812, 8816, 8852, 8885, 8886, 8887
User Computer
Full HD Display: 1920 x 1080
64 and 32 Bit Windows 7

US Patents # 5,394,049. #5,410,206, #6,476,537 & #7,528,364.
For more information visit www.newport.com or call 877-835-9620. Models 8783, 8784 and 8807 shown.

www.newport.com/newfocus

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Newport Corporation, Irvine, California and Franklin, Massachusetts; Evry and Beaune-La-Rolande, France and Wuxi, China have all been certified compliant with ISO 9001 by the British Standards Institution. Santa Clara, California is DNV certified.

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