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Find the *Mad City Labs Nano-Drive 2* at our website: *Click HERE*

Nano-Drive® Series

Features

- *Closed loop servo/drivers for all Mad City Labs nanopositioning systems*
- *Proportional-Integral feedback*
- *Analog or digital (USB) positioning control*
- *High power models available for continuous high speed scanning*
- *CE compliant* CE

Nano-Drive® 1 (1-axis) control system.



Compatible Software Packages

LabVIEW

Image-Pro AMS — *Analog motion control*

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

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

MetaMorph — *USB and analog motion control*

SLIDEBOOK 5.0 — *Analog motion control, 1 or 2 axes.*

Nano-Drive® 2 (2-axis) control system.



Nano-Drive® 3 (3-axis) control system.



Product Description

The Nano-Drive® Series of controllers are complete electronic packages for sub-nanometer positioning. All Nano-Drive® controllers include low noise, low drift amplifiers, absolute position control, bandwidth selection, and closed loop feedback. Closed loop feedback ensures that the displacement as a function of input voltage is highly linear and free of positioning errors caused by inherent creep and hysteresis in the piezo actuators.

All Nano-Drive® models provide standard analog control inputs (0-10V) via front panel BNC's. Optional 16-bit or 20-bit USB digital control interfaces may also be included to provide true "Plug & Play" connectivity. Both single and multi-axis versions of the Nano-Drive® allow the user to switch select a reduced system bandwidth - providing an extra margin of stability for high load setups. Front panel output BNC's provide access to the

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real-time position sensor signal and the actuator drive signal (HV/10). The standard analog position command signal is configured for a 0-10V input with other ranges available upon request (see options). The AR-10 option (-10V to +10V command signal) is compatible with Veeco Bioscope/Nanoscope IV controllers when interfaced to a breakout box (see options). The Nano-Drive® is also available in circuit board form for OEM or custom applications.

Nanopositioners combined with a Nano-Drive® controller form a calibrated system which is individually adjusted and optimized for the specific motions requested by the customer. Factors such as load (sample mass), type of motion (steps, scanning, etc.), and required positioning speed are all factored into the customized setup. A high power version, the Nano-Drive®85, is available for applications which demand continuous, high speed scanning and fast step responses.

USB Computer Interfaces

• "Plug & Play" 16-bit and 20-bit digital USB interfaces areWindows XP, Vista, and 7 compatible, for both 32-bit and 64-bit PC's. USB drivers are included. 20-bit resolution is required to access the maximum available resolution of the nanopositioner. 16-bit resolution is sufficient for most optical microscopy applications

• LabVIEW compatible: example VI's, an extensive LabVIEW tutorial, and Nano-Route®3D (an open source LabVIEW based motion control program) are provided with every USB enabled Nano-Drive® controller.

• Easily synchronize the nanopositioning system with other external instrumentation.

• Computer waveform generation and position data logging with internal memory for up to 10,000 positions.

• USB interfaces can be retrofit into existing Nano-Drive® controllers.

• Custom firmware available upon request.

Nano-Drive® Options

USB16x	16-bit USB interface (x denotes the number of axes) for moderate resolution, user friendly "Plug & Play" control.
USB20x	20-bit USB interface (x denotes the number of axes) for maximum resolution, user friendly "Plug & Play" control.
AR-10	-10V to +10V analog input control voltage range. Compatible with the Veeco Nano Scope/Bioscope - may require the VBOB option if high voltage control signals are used (see below). Compatible with computer interface USB20x but not compatible with USB16x.
AR-6	-6V to +6V analog input control voltage range. Compatible with computer interface USB20x but not compatible with USB16x.
AR-5	-5V to +5V analog input control voltage range. Compatible with computer interface USB20x but not compatible with USB16x.
ISS	Image scan sync - provides TTL compatible pixel clock, line clock, and frame clock. Compatible with Becker & Hickl and Pico Quant TCSPC modules (Time Correlated Single Photon Counting). The ISS option requires either the 16-bit or 20-bit USB interface option (above) in order to function. Nano-View® and Nano-View®/M systems include the ISS option.
SO	Scan offset potentiometer for the Nano-Drive®.
OCL	Front panel open loop / closed loop switch.
VBOB	Veeco Breakout Box. Reduces Veeco NanoScope/Bioscope controller high voltage output signals to +/-10V. May be needed with the AR-10 option.
CBOB	Custom Breakout Box. Specified by customer to provide compatibility with external instrumentation.
RM	Rackmount for Nano-Drive® controller.

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