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NV200/D

Digital Piezo Controller

- 180 V, 400 mA peak current
- 16 bit resolution
- Ethernet remote control
- PiSoWorks software for complete control

The NV200/D is a digital piezo controller with a serial and an Ethernet interface for local and remote control and servicing of piezo actuators. The user can drive quasi-static or dynamic step positioning applications through the network access, allowing for more flexibility and use in critical environments. For high dynamical applications, a real time SPI interface is implemented.

The controller can drive piezo elements with up-to 400 mA. With a 16 bit resolution, the NV200/D guarantees high positioning accuracy and low noise. The NV200/D can automatically recognize actuators and adjust control parameters from stored information in the EPROM connector. The NV200/D can be used with actuators equipped with either strain gauge or capacitive sensors, as well as with actuators without a measurement system. The NV200/D also supports actuators based on piezosystem jena NanoX® bi-directional actuating technology.

Features:

The NV200/D has an automatic sensor calibration (ASI / ASC) function. All values of the actuating system: the serial number of the actuator, the actuator name, the control parameters and the filter settings - are stored in the actuator plug. This allows for an easy exchange of actuators or controllers.

A digital PID controller is integrated into the device. The user can change the values according to the current set-up. PiSoWorks control software Easy Mode allows for basic functions control. For repetitive motion patterns, an iterative learning control (ILC) algorithm in Advanced Mode can be used to achieve the highest tracking precision. In this way the NV200/D can achieve closed-loop precision at open-loop speeds.

The system also includes an integrated data recorder and the ability to detect resonant frequency. By using the trigger input and output functions additional NV200/Ds can be synchronized to control multiple axes.

Further Highlights

- USB-C interfaces
- Real-time SPI interface
- Analog interface
- Trigger I/O
- Low-pass filter + slew rate limiter
- Feedback control with adustable PID / ILC controller
- Arbitrary waveform generator

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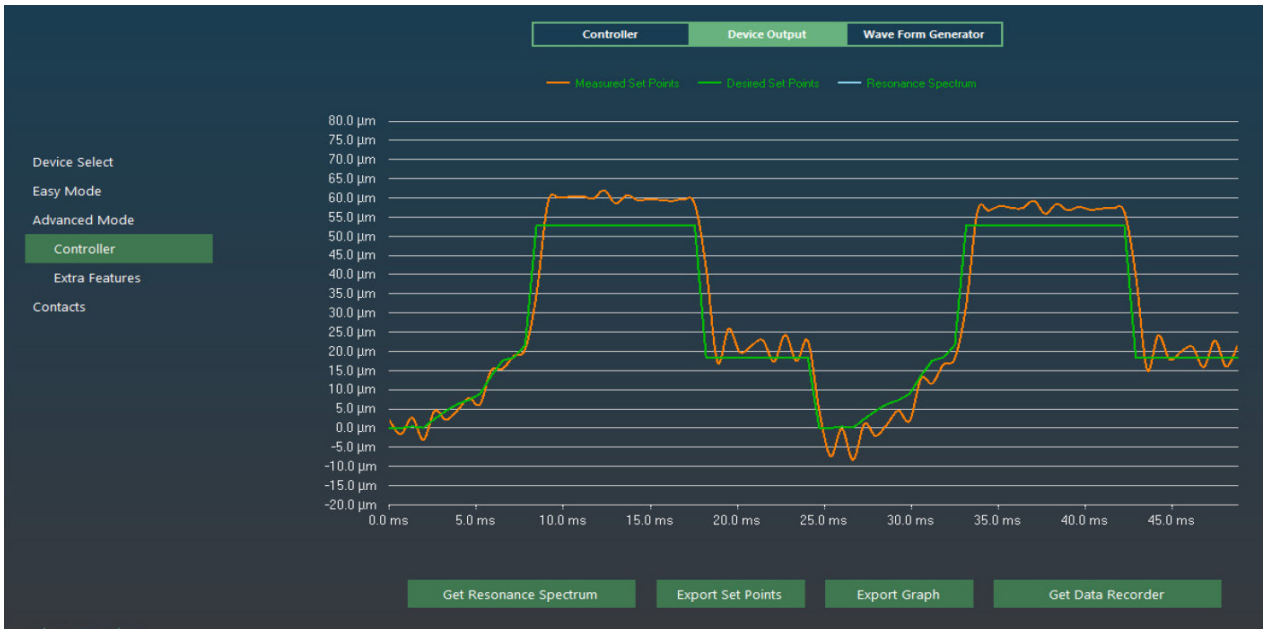
PiSoWorks Software

for the NV200/D Piezo Controller



PiSoWorks software is included for free with a NV200/D controller. It can be easily downloaded from our website. The software has an easy-to-use graphical interface (example above), and offers Easy Mode and Advanced Mode functionality.

Easy Mode functionality:

Once the NV200/D controller is connected to a computer and a piezo actuator, the software will identify and display all the components.

In Easy Mode you can easily switch between open & closed-loop operation, and instruct the piezo to move to specified locations.

After a specified move command has occurred, you can review the exact movement of the piezo actuator graphically on your computer.

Advanced Mode functionality:

In Advanced Mode you gain full control over the actuator and can utilize an advanced set of operations. These include:

- Manually adjust PID values for closed-loop control.
- Control the piezo actuator dynamically by manually setting the internal signal generator.
- You can upload custom waveforms.
- Easily use the internal data-recorder.
- Automatically determine the resonance spectrum of the piezo (with added load).
- Use ILC (Iterative Learning Control) to generate higher closed-loop speeds compared to regular PID control. The ILC learns the actuator's unique behavior and then compensates for unwanted motion.

PiSoWorks Software - For complete control of the NV200/D controller and piezo actuator.

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NV200/D

Digital Piezo Controller

	Unit	
Part #	-	E-730-820
Power supply ± 10%	V	24 VDC
Input current	A	Max. 2.5 A average, 5.8 A peak
Power connector	-	2.1 mm DC plug
Channels	-	1
Output voltage	V	-20 ... 130, or -10 ... +180 (Automatically adapts to actuator)
Output current	mA	200 / 400 peak (1.2 ms)
Output current NanoX®-mode	mA	2 x 100 / 2 x 200 peak (1.2 ms)
Voltage noise (at 500 Hz bandwidth)	mV RMS	0.7
Actuator connector	-	D-sub 15 pol.
DA-converter resolution	bit	16
AD-converter resolution	bit	16
Sensor	-	External sensor, strain gauge, capacitive
Feedback controller types	-	PID control with lowpass and notch filters, ILC control
Features	-	• Short-circuit proof • Over-temperature protection • Arbitrary waveform generator • Data recorder • Resonant frequency detection • Current piezo position
Interface module	-	• Ethernet • USB • SPI (D-Sub 15 pol. HD) • Analog modulation / Monitor (D-Sub 15 pol. HD)
Casing dimensions (L x W x H)	mm	165 x 120 x 65
Operating temperature	-	5 ... 35 °C / 41 ... 95 °F
Humidity	% rel.	Max. 80, non-condensing
Altitude	m	Up to 2000

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