New E-871.1A1N Digital Servo Controller for Nanometer Resolution Actuators
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PI PRESS RELEASE

Compact Closed-Loop Motion Controller provides nanometer resolution for Miniature Piezo Motor Micrometers

Closed-loop opto-mechanical actuators provide higher precision with this new compact motion controller.

October 2017, Auburn, MA – PI (Physik Instrumente) L.P., known industry-wide for nanometer precision motion components, systems, and OEM solutions, announces a new compact closed-loop motion controller. The new E-871.1A1N digital servo controller is the latest model in a series of drivers and controllers specifically designed for inertia-motor based opto-mechanical actuators (piezo ratchet drives) that are widely used in the semiconductor, laser and photonics industry for fine-tuning of complex systems. The miniature actuators are often employed as "set-and-forget" mechanisms with an option to remotely make adjustments, where manual micrometer screws would necessitate a system-shutdown to allow for corrections. Other application fields include bio-nanotechnology, microscopy, and micro-manipulation.

Integrated Power Amplifier and Voltage Generator
The E-871.1A1N has an integrated power amplifier and voltage generator for piezo inertia drives and is optimized for PI's compact N-472 series of closed-loop PiezoMike precision actuators which provide high stability, long lifetime of more than 1 billion steps, and low cost of ownership.

Data Recorder, Auto-Calibration ID Chip, Quick Start Up, Comprehensive Software Package
The E-871.1A1N is equipped with a data recorder for high speed tracing, ID chip compatibility for quick start-up and exchange of system components without recalibration. The controllers are delivered with extensive software packages, including support for LabVIEW, MATLAB, C / C++ / C# / VB.NET and Python. In addition, a powerful macro programming language is available, for automation tasks and stand-alone operation. Communication with a host PC is via modern interfaces, such as TCP/IP and USB. An optional joystick is available for manual operation.

Ratchet Actuator Advantages

Actuators with a screw and ratchet mechanism are designed with a small piezo ceramic block that performs the individual “clicks” based on the input to a controller. The advantage of this design is a very high stiffness and blocking force of up to 100N (22 lbs). Once the encoder tells the controller that a position is reached, the actuator is vibration-proof, shock-resistant, and long-term stable, with no position drift or jitter.

Specifications, Datasheet, More Information >
http://www.pi-usa.us/products/Motor_Controllers/Motor_Controller_Precision_Positioner.php#E871

Standard and Custom
PI has over 4 decades of experience providing in-house engineered precision motion control solutions, and can quickly modify existing product designs or provide a fully customized OEM part to fit the exact requirements of the customer’s application.

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About PI
PI is a leading manufacturer of air bearing stages, piezoelectric solutions, precision motion control equipment, and hexapod parallel-kinematics for semiconductor applications, photonics, bio-nano-technology and medical engineering. PI has been developing and manufacturing standard & custom precision products with piezoceramic and electromagnetic drives for 4 decades. The company has been ISO 9001 certified since 1994 and provides innovative, high-quality solutions for OEM and research. The PI group employs more than 1,000 people worldwide in 15 subsidiaries and R&D / engineering centers on 3 continents.

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