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E-861 PiezoWalk® NEXACT® Controller/Driver

Networkable Controller for NEXACT® Linear Drives and Positioners



PiezoWalk® System: E-861.1A1 NEXACT® Controller with open-loop N-310.01 NEXACT® linear drive; suitable for installation in stage with linear encoder

- **For NEXACT® Drives and Positioning Systems**
- **Complete System with Controller, Integrated Power Amplifiers and Software**
- **Open-Loop Operation, or Closed-Loop with Linear Encoder**
- **High Performance at Low Cost**
- **Daisy-Chain Networking for Multi-Axis Operation**
- **Non-Volatile Macro Storage for Stand-Alone Functionality with Autostart Macro**
- **I/O for Automation, Joystick for Manual Operation**
- **Parameter Changes On-the-Fly**

The new, compact E-861 controller is designed to operate NEXACT® linear drives and closed-loop positioning systems using them, simply and precisely. In perfect harmony with the mechanics, the E-861 supports both motion modes of the PiezoWalk® stepping drive: for longer moves, the stepping mode, and for moves shorter than typically 7 µm, the analog mode, which provides high-dynamics positioning with resolutions of less than 1 nm. The NEXACT® drive design minimizes piezo operating voltages to 45 V and below.

Flexible Automation

E-861 controllers offer a number of features to support automation and handling. For example, macros can be stored in non-volatile memory.

A programmable autostart macro allows stand-alone operation without external communication. Upon power-up, the macro with its internal command sequence is executed automatically.

For easy synchronization of motion with internal or external trigger signals, four input and four output lines are provided.

Multi-Axis Operation

Up to 16 E-861 controllers can be networked and controlled over a single PC interface.

Such daisy chain networks are flexible, can be extended at any time and are compatible with other PI controllers (e.g. DC servo-motor and stepper motor controllers).

Ordering Information

E-861.1A1
NEXACT® Controller, 1 Channel, Linear Encoder

Easy System Setup, Comprehensive Software

All parameters can be set and checked by software. System setup and configuration is done with the included PIMikroMove user-interface software. Interfacing to custom software is facilitated with included LabView drivers and DLLs. With the PI General Command Set (GCS), system programming is the same with all PI controllers, so controlling a system with a variety of different controllers is possible without difficulty.

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The newest release for data sheets is available for download at www.pi.ws. R1 10/10/04.0

Technical Data

Model	**E-861.1A1**
Function	Controller for NEXACT® drives / systems
Drive type	NEXACT® linear drive
Channels	1
Motion and control	
Servo characteristics	P-I-D servo control, parameter change on-the-fly
Trajectory profile modes	Trapezoidal
Encoder input	Analog encoder input sine-cosine, interpolation circuit preset for differential transmission, 1 V_{pp} amplitude and 2.5 V offset of the encoder signal
Stall detection	Servo off, triggered by programmable position error
Input limit switch	2 x TTL (pull-up/pull-down, programmable)
Input reference switch	1 x TTL
Electrical properties	
Output power	max. 40 W
Output voltage	-10 to +45 V
Current consumption	max. 2 A
Interfaces and operation	
Communication interfaces	USB 1.0, RS-232 (9-pin (m) Sub-D)
Motor connector	Sub-D 15-pin (f) High Density
Sensor connector	Sub-D 15-pin (m) High Density
Controller network	Up to 16 units on single interface
I/O ports	4 analog/digital in, 4 digital out (TTL)
Command set	PI General Command Set (GCS)
User software	PIMikroMove, PI Terminal
Software drivers	GCS-DLL, LabVIEW drivers
Supported functionality	Start-up macro; data recorder for categories like current position or velocity; internal safety circuitry: watchdog timer
Manual control (optional)	Joystick, Y-cable for 2D motion, pushbutton box
Miscellaneous	
Operating voltage	24 V included: external power supply, 24 V, 2.0 A
Operating temperature range	0 to +50 °C
Mass	1.1 kg
Dimensions	206 x 130 x 66 mm (with mounting rails)

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