E-862 NEXACT® Drive Electronics

Low-Cost Drive Electronics for NEXACT® Piezo Stepping Drives

Cost-effective E-862 OEM drive electronics

- ■ **For NEXACT® PiezoWalk® Drives & Stages**
- ■ **Combined Step Generator and Power Amplifier**
- ■ **Cost-Effective Design**
- ■ **Interface for Automation, Joystick for Manual Operation**

The E-862 drive electronics is designed to put open-loop NEXACT® linear drives and stages into operation. E-862 supports the nanostepping mode of NEXACT® piezo stepping drives, which is ideal to cover a certain distance in the fastest possible way. The final position is stable without further current consumption.

Simple Control – High Resolution

The driver uses a ±10 V signal that controls the velocity of the NEXACT® drive. The motion is resolved down to nanometers, depending on the drive and its mechanical integration.

Joystick Operation and Interface for Automation

Stand-alone operation is possible by connecting a joystick. As an alternative, the required ±10 V signals can be sent over an analog interface.

PiezoWalk® Working Principle for Application Flexibility

NEXACT® piezo stepping drives combine high forces and a basically unlimited travel range in a compact package. In operation, piezoceramic bending elements act on the runner, which is connected to the moving part of the application. The length of the runner can be chosen freely and determines the stroke. Force capacity, resolution and velocity are determined by the piezo geometry and drive electronics. The drive design allows lower operating voltages of maximum 45 V. Furthermore, NEXACT® actuators have the high stiffness and resolution characteristic of piezo actuators of far below one nanometer.

Advantages of PiezoWalk® Piezo Stepping Drives

NEXLINE® and NEXACT® drives offer several advantages over drives with with traditional technologies:

- ■ Resolution in the picometer range
- ■ Compact dimensions
- ■ High drive forces to 10 N (NEXACT®) and up to several 100 N (NEXLINE®)
- ■ High dynamic performance with sub-millisecond response
- ■ Self-locking when powered down; no holding current
- ■ Zero backlash, no wear or maintenance, no mechanical components like gears or leadscrews.
- ■ Non-magnetic and vacuum compatible operating principle

Closed-Loop Systems for Repeatable Positioning

The step size of piezo stepping drives depends on the applied load and a direct conversion of step count to travel is not possible. Therefore, for positioning tasks a closed-loop system is recommended.

Technical Data

Model	E-862.100
Function	Drive electronics for NEXACT® drives / stages
Drive type	NEXACT® drive
Channels	1
Motion resolution	12 bit
Input limit switch	2 x TTL (active high, to be activated)
Electrical properties	
Output power	max. 40 W
Output voltage range	0 to +45 V
Current	max. 1.6 A
Interfaces and operation	
Control	±10 V analog velocity control (Mini-DIN, 9-pin)
Motor connector	HD Sub-D 15-pin. (f)
Manual control (optional)	Joystick, Y-cable for control of 2 axes with joystick
Miscellaneous	
Operating voltage	24 V
	External power supply (24 V, 2 A), not included
Operating temperature range	0 to +50 °C
Mass	0.64 kg
Dimensions	166 x 100 x 46 mm

Note: All specifications for NEXACT® drives refer to use with E-861 controller. Compared to that, the E-862 drive electronics provides only a unipolar output voltage. Therefore, push force and velocity achievable with E-862 are derated by 20%.