

Overview

The LVPZT-200 Linear Servo Controller is a high performance single axis low voltage PZT controller and amplifier system. It is comprised of two separate PC board level products with a cohesive interface. One card provides power supply functionality and the other analog servo control, and communications interfaces. It was specifically developed for control of low voltage PZT's requiring both high temporal and spatial servo precision, such as machine vision, inspection, scientific imaging, medical imaging and other business applications.

LVPZT Switching Power Supply

The LVPZT Switching Power Supply is a step-up voltage converter. The input voltage to the power supply can extend from ± 12 to ± 15 volts. Various safety protections are integrated into it including an external enable bit, temperature shutdown, current limits, fused power supply input. Integrated heat sinking also provides various mounting options. The Power Supply includes a bus interface to the Servo Controller to source both low and high voltages to the attached Servo Controllers. The Power Supply can be ordered with various voltage handling capabilities thus providing the most economical solution for a given application.

ASC4 Analog Servo Controller

The ASC4 Analog Servo Controller accepts a differential analog ($\pm 10V$) user command and motor feedback signal. It applies a PID control law that is adjustable by digital potentiometers. Other digital potentiometers are provided to control overall gain, sensor offset and gain. The on-board circuitry supports servo enable, fault reset and a fault sense bit. The analog nature of this servo controller means that the sampling of the PZT feedback sensor and the update rate to the output amplifier is continuous. The board is normally configured to support closed loop position control. A digital bit is also provided to open the loop allowing a commanded voltage to be directly applied to the PZT.

FEATURES:

- Very small form factor (even when considering connectorization).
- Integrated heat sinking.
- Low noise linear current amplifier.
- Over temperature & current protection.
- Single power supply requirement.
- Lower power / lower cost options.
- Extensive on-board power filtering.
- Surface mount technology.
- High reliability.
- External analog control input interface.
- PID servo damping terms.
- Digitally programmable servo values.
- External analog control input interface.
- RS232 Serial interfaces.
- Advanced RISC processor
- Field upgradability.
- Sixteen-bit DAC.
- Two user definable analog inputs.
- 2 user definable DIO.
- Windows 95, 98, 2000 support.
- Software Developers Kit available.

LVPZT SYSTEM SPECIFICATIONS:

Amplifier Power:	100V @ 30mA 200V @ 15mA (Opt.)
Channels	1
Current Limitation	Short-circuit proof
Polarity	Positive
Control Input	0 to $\pm 10V$
Output Voltage	-10 to 100 V
Input Impedance	100 k Ω
Max. Servo Bandwidth	10 kHz.
I/O Connector	16-pin (male)
RS232 Connector	DB9 (female)
PZT Output Connector	LEMO 0S.304
User Analog Input:	100 kHz, 2 channels, 10bit
User Definable I/O:	2 + (2 Interrupts)
Interfaces:	RS232
Operating Temperature	0°C to 50°C
Power:	± 12 VDC @ 100mA
Size: (2 Board Set)	2.5 x 3.75 x 1.5 in.

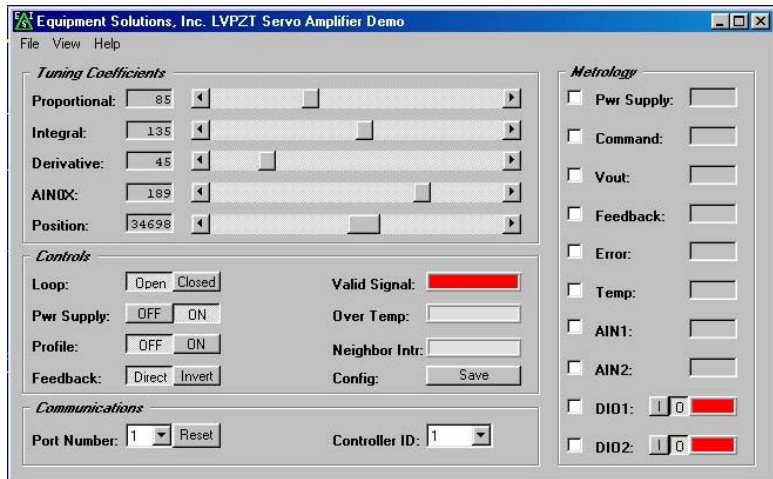
LVPZT System Options:

- High dissipation heat sinking.
- USB Interfacing module.
- Auxiliary Header Screw Terminal Block.
- PDA Interfacing System
- Various Power Supplies.
- Various motor interface cables.

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The Digital Processor in its normal configuration provides a means for a remote host to control the PZT. The host may connect to the processor in a few different standard ways. Communications can be established through a RS232 channel operating at 115kBaud. The processor card has many built-in resources including DIO, DAC, and ADC. The 16-bit DAC is used to command the servo as an alternative to the analog input described earlier. There are two ten-bit ADC channels for user applications. Each channel can acquire data at a rate of up to 100 kHz. Six other ADC channels are committed to Position and current sensing and other internal resources of user definable digital inputs and outputs.



Servo Tuning & Analysis Software

A powerful software tool for analyzing a LVPZT Servo Controller Amplifier is available. The menu-driven software guides the user step-by-step through system set-up, tuning and evaluation. The LVPZT Servo Controller Amplifier also includes sample applications and ActiveX libraries as part of the Software Developers Kit. Together, this kit provides programmable access to the features of the LVPZTx Servo Controller System.

Equipment Solutions, the Company

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