



Overview

The SCA814 Linear Servo Controller and Amplifier is a high performance single axis DC motor controller and amplifier system. The card provides current amplification and the other analog servo control, communications interfaces. The single-phase characteristic of the current amplifier makes it particularly well suited for DC motors such as galvanometers and voice coils. It was specifically developed for control of motor applications requiring both high temporal and spatial servo precision, such as machine vision, inspection, scientific imaging, medical imaging and other business applications.

SCA814 Linear Current Amplifier Section

The SCA814 Linear Current Amplifier is a voltage to current amplifier. The bipolar power supply can extend from ± 12 to ± 35 volts. Various safety protections are integrated into it including an external enable bit, temperature shutdown, current limits, and fused amplifier output. Integrated heat sinking also provides various mounting options. The Amplifier can be ordered with various current handling capabilities thus providing the most economical solution for a given application. In addition to the motor drive and feedback signals, the motor connector also provides interfaces for limit switches or digital encoders, an analog motor temperature sensing line, and support for the Plug-N-Go™ technology.

Digital Processor

The Digital Processor in its normal configuration provides a means for a remote host to control the motor. The host may connect to the processor in a few different standard ways. Communications can be established through a RS232 channel or an optional USB interface. The processor card has many built-in resources including DIO, DAC, ADC and FLASH memory. The 16-bit DAC is used to command the servo. There are three bits of user definable digital inputs and outputs. The Digital Processor's full support of Plug-N-Go™ allows compliant motors to be nearly instantly tuned.

AMPLIFIER FEATURES:

- Very small form factor (even when considering connectorization).
- Integrated heat sinking.
- High voltage, high current capabilities.
- Low noise linear current amplifier.
- Over temperature & current protection.
- Extensive on-board power filtering.

SERVO CONTROLLER FEATURES:

- Surface mount technology.
- High reliability.
- External analog control input interface.
- PI and synthesized velocity servo damping terms.
- Digitally programmable servo values.
- Adjustable slew rate control.
- Over-travel protection.
- External analog control input interface.

PROCESSOR FEATURES:

- RS232 Serial interfaces.
- Advanced RISC processor
- Field upgradability.
- Sixteen-bit DAC.
- 3 user definable DIO.

SOFTWARE / SYSTEM FEATURES:

- Windows 98, 2000 XP support.
- Patent Pending technologies.
- Software Developers Kit available.

SCA814 SYSTEM SPECIFICATIONS:

Servo Bandwidth	10 kHz.
User Definable I/O:	2 + (3 Interrupts)
Interfaces:	RS232
Operating Temp	0°C to 50°C
Power:	± 12 V to ± 35 V DC
Motor Drive:	± 12 V to ± 35 V DC 10 Amps peak
Size:	3.0 x 3.0 x 0.5 in.

SCA814 Options:

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

SCA814 Analog Servo Controller Section

The Analog Servo Controller accepts a differential analog user command and motor feedback signals. It applies a PI and synthesized velocity feedback damping (V) control law that is adjustable by digital potentiometers. Other digital controls are provided to for sensor offset and gain, motor limits and slew rate regulation. The on-board circuitry supports over-current and over-travel shutdown, servo enable, fault reset and a fault sense bit. The analog nature of this servo controller means that the sampling of the motor feedback sensor and the update rate to the SCA814 Linear Current Amplifier is continuous. The board is normally configured to support closed loop position control. Alternatively, the loop can be closed on motor current (acceleration, force, torque).

Servo Tuning & Analysis Software

A powerful software tool for analyzing a SCA814 Servo Controller Amplifier is available. The menu-driven software guides the user step-by-step through system set-up, tuning and evaluation. The SCA814 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 SCA814 Servo Controller System.

Equipment Solutions, the Company

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