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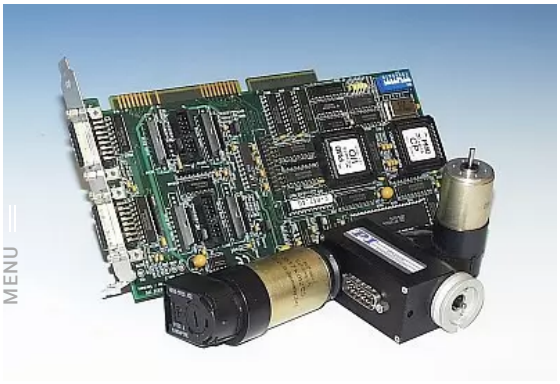
C-842 DC Motor Controller PC Board for Closed-Loop Servo Motors

Legacy Product



Motion Controllers for Motorized Stages

PI provides a large variety of hardware & software solutions for high precision motion control. Our portfolio spans from integrated compact single axis servo controllers / drivers, such as popular Mercury-class motion controllers, to complex multi-axis systems for parallel-kinematics positioners, such as hexapods.



C-842.40 Servo Motor Controller Board

ISA Bus Compatible Simultaneous

Control of up to 4 Closed-Loop Servo Motors

Fast 32 bit Digital PID V-ff Servo Loop

On-Board Linear Power Amplifiers (12 bit) and PWM Outputs

Trapezoidal-Curve, S-Curve & Velocity Contouring

LabView Drivers, Libraries for C, PASCAL, etc.

Programming Tools for Win 95, NT, 3.1 and DOS

Hardware Interrupts for Process Control

High Level Command Language Interface

16 I/O Lines for Flexible Automation

12 TTL Inputs for Limit & Origin Switches

Electronic Gearing

Programmable Torque Limit

Motor Brake Control Output (Versions C-842.xxB)

MENU



C-884.4DC • C-884.6DC Motion Controller for DC Motors, 4 or 6 Axes

6-Axis or 4-Axis; Trapezoidal velocity profil; detailed motion system analysis; Cost Efficient

The C-842 PC plug-in **programmable servo motor controller** board is the optimal solution for applications where a **multi-axis precision motion stage** is to be computer controlled by a PC. Integrated low noise, linear amplifiers allow operation of compact **micropositioning stages** with motor / gear box drives without additional external amplifiers, reducing costs and simplifying the set-up.

The C-842 is equipped with a fast DSP (Digital Signal Processor) providing high performance closed-loop PID motion control with many options of trajectory generation and filter setting. Position, velocity, acceleration and several other motion parameters can be programmed individually for each axis on-the-fly. The C-842 can be installed in 16-bit ISA PC slots.

Additional high-performance advanced motion controllers and drivers, including EtherCat based industrial motion controllers can be found here:



Motion Controllers for Motorized Stages

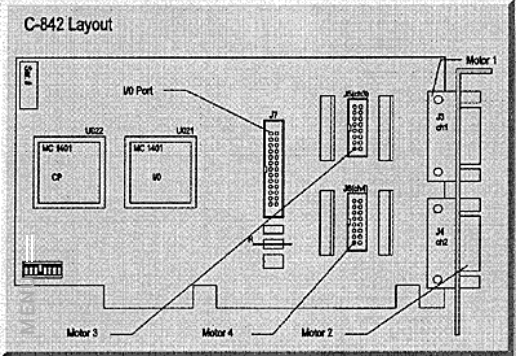
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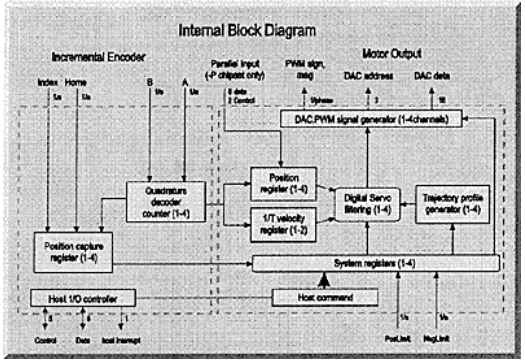
Any quadrature TTL incremental encoder can be used for position feedback (linear scales and rotary encoders, interferometers). Eight TTL inputs and eight TTL outputs are available for flexible automation (trigger functions etc.).

More information on **motion control software tools from PI**

The C-842 offers full access to the internal processor functions via the I/O address space. Programmers can use hex commands and 32-bit parameters for very fast communication (3000 data/sec). The motor controller also comes with a variety of software tools such as LabView drivers, libraries in C, PASCAL and BASIC and a DOS program for instant, easy operation without low-level programming. Windows programming is supported by 32 bit and 16 bit DLLs.

Learn more about **advanced motion control algorithms and motion systems for PCB board manufacturing**





ORDERING INFORMATION:

C-842.20 DC Servo Motor Controller PC Board, 2 Axis

C-842.40 DC Servo Motor Controller PC Board, 4 Axis

C-842.20B DC Servo Motor Controller PC Board, 2 Axis, Brake Output

C-842.40B DC Servo Motor Controller PC Board, 4 Axis, Brake Output

TECHNICAL DATA: C-842

Function	PC Bus compatible DC-Servo Motor Controller
Channels	4 (C-842.40); 2 (C-842.20)
Servo characteristics	32 bit programmable PID V-ff filter, 100 m s/ enabled axis, parameter changes on-the-fly
Profile modes	trapezoidal, S-curve, velocity contouring, electronic gearing
Output power / resolution	analog H-bridge ± 12 V, 5 Watts/channel, 12 bit D/A converters, optional output for PWM drivers (10 bit, 24 kHz)
Current limitation	1 A peak (short circuit proof)
Encoder input	AB (quadrature) TTL signals (single ended or RS-422 differential mode), max. 10^6 counts / sec
Stall detection	servo off, triggered by programmable position error
Limit switches	8 TTL (pull-up/ pull-down, programmable)
Origin switches	4 TTL (pull-up/ pull-down, programmable), real time position capture
I/O ports	8 TTL inputs, 8 TTL outputs (pull-up)
Motor connectors	4 x 15 pin (f) D-Sub (2 on board, 2 on bracket holder)
Interface / Communication	PC ISA bus, I/O mapped, interrupt break point capability
Command set	> 100 high level commands
Host software & programming Tools	DOS, Windows 95ä DOS window: QMove operating program, Joystick Tools. LabViewä drivers (Windows 95ä) Libraries for C, Pascal, BASIC, Delphi 16 and 32 bit DLLs for Windows 3.1 & 95 ä, device driver and DLL for Windows NTä

The C-842 is based on the MC1401 PMD chip set to generate motion trajectory and digital servo loop filtering. This sophisticated DSP system supports more than 100 commands for trajectory control, servo filtering, breakpoint handling, position referencing and many other tasks.

At the hardware level, communication is via hexadecimal commands, transferred byte by byte from the operating software to the PC I/O port. The C-842 documentation comes with the full DSP command set to allow hardware level programmers direct programming of all registers. For users who don't want to deal with hexadecimal commands, a variety of software tools is provided with the C-842 controller.

Software libraries for all major programming languages provide a simple user interface which only requires specification of board address, motor channel and the motion command with the optional parameter.

C-842.TO Software Tools Distribution Disk (included)

QMove Interactive Operating ProgramQMove is a general purpose operating program providing a set of mnemonic short form commands. An online display of all motor positions and major motion control parameters reflects the system status.

QMove allows single command execution and macro command file handling for multi axis motion. Complex positioning procedures can be programmed using stackable macro command loops.

QMove runs under DOS but can also be used without restrictions as a DOS task under Windows 3.1 or Win95. It comes free on the C-842 Tools distribution disk.

QLink

QLink is an interface program that converts ISA bus PCs (286 and later, keyboard and monitor not required) running DOS into stand-alone motor controllers with RS-232 interface. The C-842 has to be installed in the host PC and QLink is executed. The PC now behaves like a stand-alone motor controller and can be controlled via the RS-232 interface. Ideal for users who want to operate the C-842 remotely or by a computer without ISA bus.

QLink runs under DOS but can also be used without restrictions as a DOS task under Windows 3.1 or Win95. It comes free on the C-842 Tools distribution disk.

QHEX

QHEX is an interface program that converts ISA bus PCs running DOS into stand-alone multi axis DC motor controllers. Up to four C-842 with a total of 16 axes can be installed and remotely operated via the RS-232 interface. All QFL short form commands are available with extended axis specifier referring to axis numbers 1 through 16.

Programming Tools for C-842

Programming Tools for all major programming languages are available and provide convenient access to the basic functionality of the C-842 board. Exceeding the generic commands of the processor firmware, the libraries offer many features like high level command (mnemonic code) communication, command sequencing (macro commands), etc. Also byte-based low level commands can be used for fast transfer up to 3000 communication cycles/s. See table for availability.

TECHNICAL DATA: C-842

Operating System	Development Environment	Library / Tool
MS DOS™	MS C™	QFLMC library
	Borland C™	QFLC library
	Borland Turbo Pascal™	QFL library
	Borland Pascal 7™	QFL library
	MS QuickBasic 4.5™	QQB library
Windows 3.1™	Borland Pascal 7™	QFLW DLL
	Borland Delphi 1.0™ (16 bit)	QFLW DLL, Delphi DCU
	MS Visual C++™	QFLW DLL
	MS Visual Basic™ (16 bit)	QFLW DLL
	National LabView 3.1™	C842VI Library *
Windows 95™	Borland Delphi 2.0™ (32 bit)	QFLW32 DLL
	MS Visual C++™	QFLW32 DLL
	MS Visual Basic™ (32 bit)	QFLW32 DLL
	National LabView 4.1™	C842VI Library *
Windows NT™	Borland Delphi 2.0™ (32 bit)	NT Device Driver + 842NT.DLL
	MS Visual C++™	
	MS Visual Basic™ (32 bit)	

QStick Joystick Package

A joystick is a convenient tool to manually control XY positioning stages. C-842.JS includes the C-819.10 analog joystick, a game-port adapter and a software package for operation of up to 8 axes (two C-842.40 boards) with one joystick via the PC game-port adapter. The joystick is initialized and calibrated automatically after the software is started. Options such as fine speed control, command line editor and limit switch recovery round out the software.

The QStick software runs under DOS but can also be used without restrictions as a DOS task under Windows 3.1 or Win95™.

MENU

This is a legacy product that may have limited availability or may have been replaced. Ask a PI engineer for an equivalent new model.

PRECISION MOTION CONTROLLER OVERVIEW →

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