

C-880 Automation Platform

Flexible, Modular Controller for up to 18 Axes



Fiber alignment configuration example. Top: C-880.00D equipped with F-206.IRU IR-photometer card, 2 x C-842.43 servo-motor control cards and an E-760.3Si piezo controller card. Bottom left: M-511.DD precision translation stage with 0.1 μ m linear encoder for rapid loading/unloading; F-131.3SD fiber alignment system with 15 mm travel range in XYZ and 1 nm resolution. Bottom right: M-501.1PD precision vertical stage with 0.008 μ m encoder resolution; M-061.PD rotation stage and the F-210 fiber rotator

- Up to 18 Axes with (Servo-Motors, Voice Coil Drives and Piezo Actuators)
- Plug-and-Play Setup
- Large Variety of Accessories: I/O Cards, Photometers, Manual Control Pad
- RS-232 and Optional IEEE 488 Interface
- Extensive Software Support

The C-880 Automation Platform is a modular and highly versatile system for complex multi-axis positioning and automation tasks. It was conceived for applications ranging from photonics alignment and packaging to biotechnology.

Based on a rugged industrial PC, it offers the flexibility expected in today's demanding prototyping and high-precision production environment.

Application Examples

- Biotechnology
- Fiber positioning
- Flexible automation
- Semiconductor testing
- Micro-assembly
- Photonics / integrated optics
- Quality assurance testing

A variety of models and options are available, making it possible to control nanopositioning systems with up to 18 axes. Servo-motors, voice coil-drives and piezo actuators/stages can be combined in almost any combination. Available options include photometer cards for fully automated fiber alignment, a relay board for flexible automation, an integrated screen and keyboard for stand-alone operation, and a manual control pad.

PI General Command Set (GCS)

The comprehensive command structure is based on the PI General Command Set (GCS). With GCS the development of custom application programs is simplified, because the commands for all supported devices are identical in syntax and function. PI controllers for nanopositioning systems, for

piezomotors and servo or stepper motors can be commanded with GCS.

Software / Programming

In addition to the user software for setup, system optimization and operation, comprehensive LabView and DLL libraries are provided.

Accessories for Flexible Automation

To live up to its name of "Automation Controller", a variety of options and high-level drivers are available for the C-880:

- **C-880.TCP**
TCP/IP interface card, allowing operation of more than one C-880 from a single PC interface.
- **C-880.R8**
Relay Board which can switch power on up to 8 channels. The high-power capacity (24 V, 1 A) can be used to directly drive loads like pneumatic valves, magnets, relays, etc.

- **F-206.MC6**
Interactive manual control pad. This option allows easy manual control of any 6 motorized axes in the system using control knobs with programmable step-sizes.

Ordering Information

C-880.00
Automation Platform, Chassis with Power Supply, RS-232 Interface

C-880.00D
Automation Platform, Chassis with Power Supply, RS-232 Interface with Front-Panel Keypad and LCD Monitor

Options:

C-842.23
DC-Servo Motion Controller, 2 Channels, ISA-Bus

C-842.43
DC-Servo Motion Controller, 4 Channels, ISA-Bus

E-760.3Si
NanoCube® Piezo Controller, ISA-Bus PC Plug-In Board, Photometer IR Range

E-760.3SV
NanoCube® Piezo Controller, ISA-Bus PC Plug-In Board, Photometer Visible Range

Accessories:

C-880.TCP
TCP/IP Interface Card

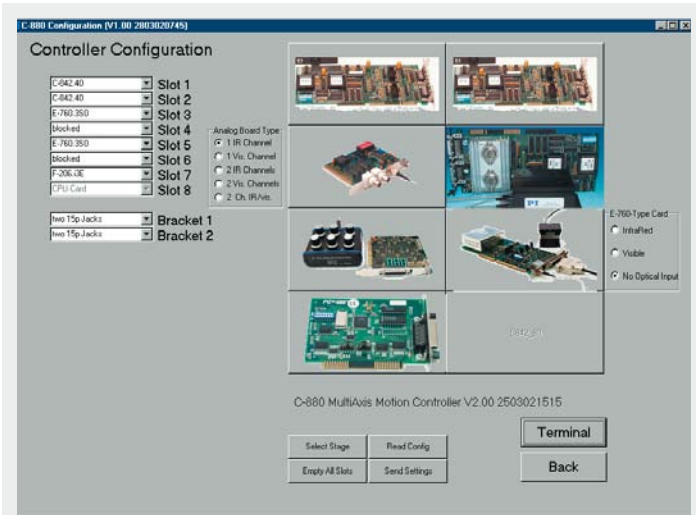
F-206.iiU
Photometer Card, IR Range, 2 Channels

F-206.VVU
Photometer Card, Visible Range, 2 Channels

F-206.MC6
Manual Control Pad for 6 Channels

C-880.R8
Relay Board for 8 Relays

- **F-206.iiU / F-206.VVU**
Photometer and A/D Cards. These cards are equipped with fiber-optic connectors, infrared or visible-light photodiodes and amplifiers. Both have integrated 12-bit A/D converters with inputs accessible via a BNC socket on the card bracket.



C-880 Configuration Software makes for quick and easy on-site upgrades

Linear Actuators & Motors

Nanopositioning / Piezoelectrics

Nanometrology

Micropositioning

Hexapod 6-Axis Systems / Parallel Kinematics

Linear Stages

Translation (X)

Vertical (Y)

Multi-Axis

Rotary & Tilt Stages

Accessories

Servo & Stepper Motor Controllers

Single-Channel

Hybrid

Multi-Channel

Micropositioning Fundamentals

Index

Technical Data

Model	C-880.00	C-880.00D
Function	Multi-Axis Automation Platform	Multi-Axis Automation Platform with Front-Panel Keyboard and LCD Monitor
Drive type	with C-842.23/C-842.43: Servo-Motors, Voice Coil Drives with E-760.3S0: Piezo Drives	
Channels	Up to 18 Axes with (servo-motors, voice coil drives), and Piezo Actuators (max. 6 piezo axes)	
Motion and control		
Servo characteristics	C-842.23 & C-842.43: Programmable 32-bit PID V-ff filter, 100 μ s per active axis, parameter changes on the fly E-760: Analog proportional-integral (P-I) algorithm with notch filter	
Trajectory profile modes	Linear interpolation, trapezoidal, s-curve, electronic gearing	
Processor	CPU 133 MHz C-842.23 & C-842.43: motion chip, 2.5 kHz servo update rate E-760: DSP	
Electrical properties		
Operating voltage	100 to 250 VAC, 50/60 Hz	
Output power per channel	C-842.23 & C-842.43: analog H-bridge with ± 12 V output, 5 W/channel, 12-bit D/A converters, 10-bit output for PWM drivers, 24.5 kHz E-760: 9 W peak, 3 W continuous	
Output voltage / channel	C-842.23 & C-842.43: analog: ± 10.5 V PWM mode: TTL level for SIGN and MAGN E-760: -20 to 120 V	
Current limitation	C-842.23 & C-842.43: 1 A/channel (short-circuit proof) E-760: 90 mA peak, 30 mA continuous	
Interfaces and operation		
Communication interfaces	RS-232 standard, including cable	
Motor connector	Sub-D 15-pin; Piezo: Sub-D, 25-pin	
Controller network	Via TCP/IP option	
I/O ports	C-842.23 & C-842.43: 8 TTL inputs, 8 TTL outputs C-880.R8: 8 channels, 60 W max., 24 V/channel, 1 A/channel	
Command set	PI General Command Set (GCS), ASCII Communications	
User software	PIMikroMove®	
Software drivers	GCS-DLL, LabVIEW™ drivers	
Supported functionality	Autostart macro, user-programmable macros, Monitor and keyboard connectors, Motor-brake control, Switching of high-power relays, Read-out of analog interface boards (photometer cards)	
Manual control	Manual control pad (F-206.MC6 option)	
Miscellaneous		
Operating temperature range	+10 to +50 °C	
Dimensions	19-inch case, 450 mm x 460 mm x 180 mm	