PIMotionMaster

MODULAR MULTIAXIS CONTROLLER SYSTEM C-885

PIMotionMaster

MODULAR MULTIAXIS CONTROLLER SYSTEM FOR ALL DRIVE TYPES

C-885.M1
Digital processor and interface module

Easy to Configure. Easy to Expand.

The PIMotionMaster system brings together what belongs together. Configure your system according to the requirements of your application. With PIMotionMaster, you can combine up to 40 channels in one rack and make use of all advantages that PI-supported drive systems have to offer – from powerful magnetic motors to positioners with piezo motors that are accurate to the nanometer. The PIMotionMaster is able to perform complex, high-precision synchronous motion on several axes. The system can also be expanded easily. You simply install an additional controller module into an already existing system and the additional functions are available within only a few minutes. This results in precision and makes it future-proof.

C-863.20C885
Motion controller module for DC motors

C-867.10C885
Motion controller module for PILine® piezomotor systems

E-861.10C885
Motion controller module for NEXACT® piezomotor systems

Controller Modules for PIMotionMaster

MINIMUM COSTS, MAXIMUM FLEXIBILITY

It is possible to use one controller module individually or in conjunction with additional controller modules in a shared C-885. Each controller module is a stand-alone digital motion controller. Any combination of the controller modules is possible, which guarantees maximum flexibility both for initial configuration and any subsequent expansion of the system.

As the higher-level system, the PIMotionMaster takes care of external communication via TCP/IP or USB as well as coordinating the motion of the individual axes. The PIMotionMaster is configured and operated centrally via the PIMikroMove® host software and the software drivers simplify integration into an automation system.

C-863.20C885 for up to 2 motion axes with DC motor or brushless DC motor: Variable travel range, maximum flexibility.

Compact translation stages

Linear axes with large travel ranges up to 1 m

Actuators for precision automation up to 100 N

C-867.10C885 for PILine® ultrasonic piezo motors: Compact design and high velocities up to 500 mm/s.

Miniaturized rotation stage with a diameter of 20 mm

Multiaxis scanner for optical inspection

Dynamic linear stage

E-861.10C885 for piezoelectric NEXACT® stepping drives: High accuracy in the single-nanometer range.

Compact linear stage, 24 mm width, high holding force at rest

Linear stage with nanometer repeatability

Linear actuators with high position resolution

PIMotionMaster

RACK WITH PROCESSOR AND INTERFACE MODULE FOR MODULAR MULTIAXIS CONTROLLER SYSTEM

C-885

- Easy configuration and start-up
- Modular design for versatile expansion
- Efficient communication with the controller modules
- Greatly reduced wiring effort
- Saves space and costs

Easy Installation

Plug-and-Play installation of the controller modules in the C-885 PIMotionMaster. The processor and interface module communicates with the PIMikroMove software and with the controller modules. It detects the available controller module type automatically.

Grouping the controller modules in one case ensures internal communication and reduces the wiring effort because of the common power source and external communication via a single USB or Ethernet interface

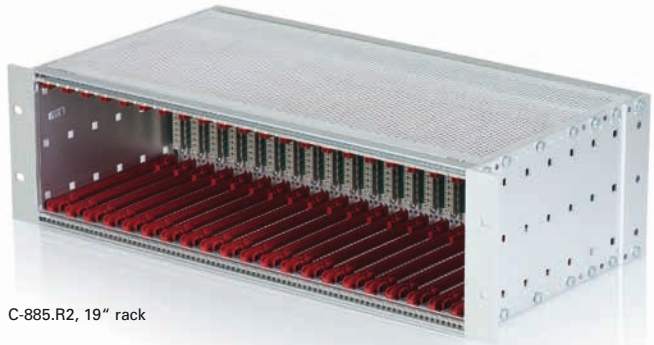
Easy to Expand

The system is easily scalable. An addition controller module can be inserted into any free slot and expands the entire system by the corresponding functions. Optional digital inputs and outputs can be installed for every controller module

	C-885.R1	C-885.R2	Unit
Function	9.5" case for C-885 PIMotionMaster modular multiaxis controller system	19" case for C-885 PIMotionMaster modular multiaxis controller system	
Number of card slots	1 digital processor and interface module (required) 4 controller modules (max.)	1 digital processor and interface module (required) 20 controller modules (max.)	
Dimensions	269.04 × 133.14 × 349.5 (including handles)	Without modules: 482.6 × 132.55 × 265.3 With modules: 482.6 × 132.55 × 278.55	mm
Operating voltage	24 VDC from external power supply	24 VDC from external power supply	
Current consumption, max.	32	32	A
Mass	3200	2900	g
Operating temperature range	10 to 40	10 to 40	°C

Preliminary Data	C-885.M1	Unit
Function	Digital processor and interface module for C-885 PIMotionMaster modular multiaxis controller system	
Interfaces and operation		
Interface / communication	Ethernet, USB	
Command set	PI General Command Set (GCS)	
User software	PIMikroMove	
Software drivers	LabVIEW drivers, dynamic libraries for Windows and Linux	
Advertisements	LEDs for Power, Error	
Miscellaneous		
Operating temperature range	10 to 40	°C
Mass	132	g
Dimensions	186.42 × 128.4 (3 RU) × 19.98 (4 HP)	mm

C-885.R1, 9.5" rack



C-885.R2, 19" rack

C-885.M1, digital processor and interface module

DC Motor Controller Module

FOR C-885 PIMOTIONMASTER MODULAR CONTROLLER SYSTEM

C-863.20C885

- For DC motors and brushless DC motors
- High-speed encoder input to 60 MHz
- Data recorder
- Nonvolatile EEPROM for macros and parameters
- 2 Channels

Digital Motion Controller for DC Servo Motors

2 channels. Motion control of PI positioning systems with DC motors: Direct motor control; PWM control for fast PI stages with integrated ActiveDrive amplifiers or with brushless motors and integrated block commutation. PID controller. Supports motor brake

Extensive Functionality

Powerful macro command language. Nonvolatile macro memory with autostart macro. Data recorder. Parameter change on-the-fly. Extensive software support, e. g., for LabVIEW, dynamic libraries for Windows and Linux

Plug-and-Play Installation in the C-885 PIMotionMaster

Can be inserted in any free slot. Automatic detection and external communication (USB, Ethernet) by the processor and interface module of the C-885. Expandable by optional digital input and outputs. Power via the power supply of the C-885

	C-863.20C885
Function	DC servo-motor controller, for C-885 PIMotionMaster modular multiaxis controller system
Channels	2
Motion and control	
Servo characteristics	PID controller, parameter change on-the-fly
Servo cycle time	50 µs
Profile generator	Trapezoid velocity profile
Encoder input	A/B quadrature single-ended or differential TTL signal acc. to RS-422; 60 MHz
Stall detection	Servo off, triggered by programmable position error
Limit switch per channel	2 × TTL (polarity programmable)
Reference switch per channel	1 × TTL
Motor brake per channel	1 × TTL, software controlled
Electrical properties	
Output voltage	0 to 24 VDC
Current limitation per channel	3 A
nterfaces and operation	
Interface / communication	USB or Ethernet, via digital processor and interface module C-885.M1
Motor and sensor connection	2x Sub-D 15-pin (f)
I/O ports	Optional with C-885.iD digital interface module for PIMotionMaster: 4 analog/digital in (0 to 5 V/TTL), 4 digital out (TTL)
Command set	PI General Command Set (GCS)
User software	PIMikroMove
Software drivers	LabVIEW drivers, shared libraries for Windows and Linux
Supported functions	Point-to-point motion, start-up macro, data recorder for recording parameters such as motor input voltage, velocity, position or position error; internal safety circuitry: Watchdog timer
Miscellaneous	
Operating voltage, supply via C-885	24 VDC
Max.current consumption	6 A
Operating temperature range	10 to 40 °C
Mass	132 g
Dimensions	186.42 mm × 128.4 mm (3 RU) × 19.98 mm (4 HP)

PILine® Controller Module

FOR C-885 PIMOTIONMASTER MODULAR CONTROLLER SYSTEM

C-867.10C885

- For PILine® ultrasonic piezomotors
- 50 MHz encoder inputs for simultaneous high velocity and resolution
- PID control with dynamic parameter switchover
- ID chip for fast start-up
- BiSS interface

Servo Controller and Power Amplifier
Special PID controller for ultrasonic piezomotors. Power amplifier for PILine® ultrasonic piezomotors and stages with piezo motors with performance class 2. Dynamic frequency control for optimum operation

Encoder Inputs
Differential signal transmission for digital (A/B) encoder signals.

BiSS interface support for absolute encoders. TTL signal inputs for limit and reference point switches

Plug-and-Play Installation in the C-885 PIMotionMaster
Can be inserted in any free slot. Automatic detection and external communication (USB, Ethernet) by the processor and interface module of the C-885. Expandable by optional digital input and outputs. Power via the power supply of the C-885

	C-867.10C885
	Controller for single-axis positioning or scanning stages, for C-885 PIMotionMaster modular multiaxis controller system
Drive types	PILine® performance class 2 motors
Channels	1
Motion and control	
Servo characteristics	Programmable PID filters, parameter changes on the fly
Profile generator	Trapezoid velocity profile
Encoder input	Sin/cos or A/B (quadrature, differential, 50 MHz) or BiSS interface
Stall detection	Servo off, triggered by programmable position error or power level
Limit switches	2 x TTL
Reference point switch	1 × TTL
Electrical properties	
Max. output power	21 W
Max. output voltage	200 V_{PP}
Interfaces and operation	
Communication interfaces	USB or Ethernet, via digital processor and interface module C-885.M1
Motor connector	Sub-D 15-pin (f)
I/O ports	Optional with C-885.iD digital interface module for PIMotionMaster: 4 analog/digital in (0 to 5 V/TTL), 4 digital out (TTL)
Command set	PI General Command Set (GCS)
User software	PIMikroMove
Software drivers	LabVIEW drivers, shared libraries for Windows and Linux
Supported functions	Start-up macro, macro, data recorder for recording parameters such as motor input voltage, velocity, position or position error
Miscellaneous	
Operating voltage, supply via C-885	24 VDC
Max.current consumption	2 A
Operating temperature range	10 to 40 °C
Mass	172 g
Dimensions	186.42 mm × 128.4 mm (3 RU) × 19.98 mm (4 HP)

NEXACT® Controller Module

FOR C-885 PIMOTIONMASTER MODULAR CONTROLLER SYSTEM

E-861.10C885

- For NEXACT® linear drives and positioners
- High-speed encoder input
- Data recorder
- Nonvolatile EEPROM for macros and parameters
- Control signal for motor brake

Digital Servo Controller for NEXACT® Piezomotors
1 channel. Supports the different types of motion of the NEXACT® drives: Nanostepping mode for longer distances. Highly dynamic positioning within one step with resolutions of one nanometer

Extensive Functionality
Powerful macro command language. Nonvolatile macro storage, e. g. for stand-alone functionality with autostart macro. Data recorder. Parameter changes on the fly.

Extensive software support, e. g. for LabVIEW, shared libraries for Windows and Linux

Plug-and-Play Installation in the C-885 PIMotionMaster
Can be inserted in any free slot. Automatic detection and external communication (USB, Ethernet) by the processor and interface module of the C-885. Expandable by optional digital input and outputs. Power via the power supply of the C-885

	E-861.10C885
Function	Controller module for NEXACT® drives, for C-885 PIMotionMaster modular multiaxis controller system
Drive types	NEXACT® piezomotor
Channels	1
Motion and control	
Servo characteristics	PID controller, parameter change on-the-fly
Trajectory profile modes	Trapezoid velocity profile
Encoder input	Analog encoder input sine-cosine,1000x interpolation; interpolation electronics preset for differential transmission, 1 V_{pp} and 2.5 V encoder signal offset
Stall detection	Servo off, triggered by programmable position error
Limit switches	2 x TTL
Reference point switch	1 × TTL
Electrical properties	
Max. output power	40 W
Output voltage	-10 TO +45 V
Interfaces and operation	
Communication interfaces	USB or Ethernet, via digital processor and interface module C-885.M1
Motor connector	HD Sub-D 15-pin (f)
Sensor connection	HD Sub-D 15-pin (m)
I/O ports	Optional with C-885.iD digital interface module for PIMotionMaster: 4 analog/digital in (0 to 5 V/TTL), 4 digital out (TTL)
Command set	PI General Command Set (GCS)
User software	PIMikroMove
Software drivers	LabVIEW drivers, shared libraries for Windows and Linux
Supported functions	Start-up macro, data recorder for recording parameters such as motor input voltage, velocity, position or position error; internal safety circuitry: watchdog timer
Miscellaneous	
Operating voltage, supply via C-885	24 VDC
Max.current consumption	2 A
Operating temperature range	10 to 40 °C
Mass	216 g
Dimensions	186.42 mm × 128.4 mm (3 RU) × 19.98 mm (4 HP)

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