

Motion Controller

4-Quadrant PWM

For combination with:
DC-Micromotors

Series MCDC 5004

		MCDC 5004	
Electrical data	Power supply	12 ÷ 50	V DC
	PWM frequency	20	kHz
	Max. continuous motor current	4	A
	Max. peak motor current	10	A
	Max. incremental encoder frequency	200	kHz
Software	Scanning time positioning loop	500	µs
	Number of programs per 50 lines	15	
	Number of indexes (acceleration, speed, position)	50	
	Input Function (function start from digital input)	8	
	Inputs for binary coded program selection	4	
	Output Function (status to digital output)	8	
	Home Function (sequence to search for zero point)	1	
Communication	IMT (Intelligent Motion Tuning)	WINMOTION®	
	Serial interfaces	RS232/485	
	Fieldbus (integrated standard)	RS485easy	
	Status display	7 – Segment Display	
	Application create/save	WINMOTION®	
	Firmware update	WINMOTION®	
Temperature rating	Operating temperature	0 ... + 55	°C
	Storage temperature	- 20 ... + 80	°C

General description

The MCDC 5004 is a very compact Motion Controller which comprises a PWM servo amplifier and is ideal for the control of our DC-Micromotors.

Technology

The Motion Controller is based on a fast, efficient 32 bit microcomputer system. This made it possible to integrate all motor control functions into the software, thus resulting in high dynamics, exact positioning and quiet running, regardless of the motor type used. The Motion Controller remains further open and flexible for future requirements. By means of simple firmware downloads the investment remains protected.

The well thought out design and the consistent application out in SMD technology has lead to very compact dimensions.

Application field

Together with rapid motor positioning 12 digital inputs and 8 digital outputs are available to the user. Home function, start indexes or whole program sequences can be directly assigned to the digital input. The devices are fully functional with a simple 24V DC supply.

This provides a broad operational area within all ranges of automation e.g. handling and loading machines, laboratory equipment, medical instruments, x-y tables, robots and automation systems in the chemical and food industry etc.

Programming with WINMOTION®

WINMOTION® the new graphic operator interface is for the parameter set-up and start-up of the Motion Controller. The clear organization with intuitive operator guidance permits start-up without the user manual.



If WINMOTION® is run on a Windows computer it automatically searches the existing interfaces for the connected Motion Controller.

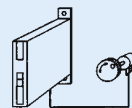
Furthermore the type of Motion Controller, the installed firmware and the state of the most important functional units is identified and indicated directly.

An efficient command-set simplifies the combining of additional computer or PLC systems. The proven, included field bus RS485easy permits efficient multi axis operation without an additional protocol expenditure like other field bus systems.

Control and Interfaces

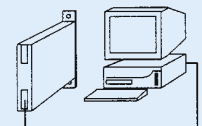
Analogue input command

To digitally control the motor speed in all 4 quadrants via a potentiometer directly connected to the driver input or via an external analogue voltage ±10 or 0-10 V DC.



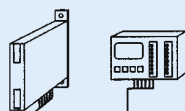
RS232 or RS485 serial interface

Programming and set-up is performed using a simple ASCII terminal via RS232 or, for safer data transmission, RS485.



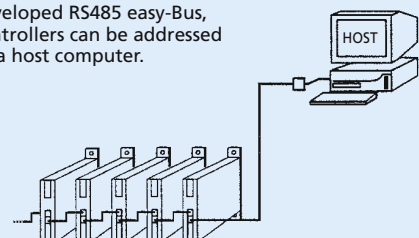
Digital Input / Output

Operates the Motion Controller in standalone mode. The 12 input programs or single commands are controlled directly by input line. In another mode it is possible to code 4 inputs in binary to select 15 different programs.



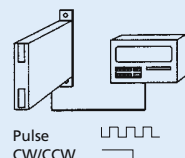
Multi-axis operation

Using the newly-developed RS485 easy-Bus, up to 32 motion controllers can be addressed and operated from a host computer.



Stepper motor emulation

The motor is operated as a stepper motor by means of a pulse and direction digital signal. The step angle is set via software using the encoder pulses.



User interface WINMOTION®

The new Motion Controller from FAULHABER can be understood practically without the user manual, on account of the new intuitively guided user interface WINMOTION®. For the user this means a fast and problem-free start-up, test phase and integration.

In demanding applications, the optimal closed loop parameter can be calculated with the Intelligent Motion Tuning (IMT) automatically including the external mechanical arrangement.

Additionally 12 digital inputs and 8 digital outputs are at the user's disposal.

Home function, start indexes or whole program sequences can be directly assigned to the digital input. The devices are fully functional with a simple 24V DC supply.

Using the efficient test functions the Motion Controller can be started and executed in an easy way, including the motor and mechanical components. While the test is running the parameters are adjustable and the results are directly evident.

Maximum and limit ranges are also simply and quickly apparent.

This saves development time and makes efficient and precise acceptance trials possible.

Application

The desired application is simple, and can be arranged via mouse-click.

For each program line command an appropriate option appears as a pull down menu.

The program is arranged line for line, the pre-defined movements (INDEX) remain at all times in the field of vision.



Set-up

Open and clearly structured, with simple adjustment via slide bar or direct numeric input. The CONTROL SETTINGS parameter can be calculated automatically using Intelligent Motion Tuning (IMT).



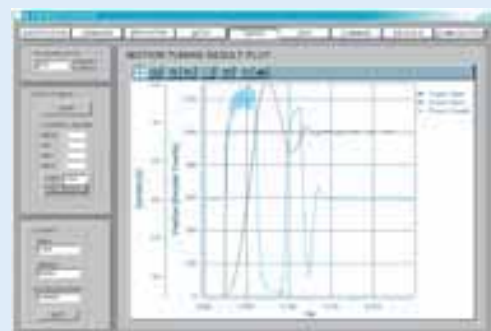
Tuning

Intelligent Motion Tuning (IMT) looks automatically for the optimal parameter values regarding dynamics and precision.

In order to do this motor combined with the external mechanical components are set into motion.

By means of a step function response of the controlled system the parameters are calculated and optimised automatically.

Furthermore, programmed movements can be graphically shown and examined for accuracy over various test distances.



Dimensional drawing and connector information

