

Motion Controller

4-Quadrant PWM

For combination with:
DC-Micromotors

Series MCDC 3603

		MCDC 3603	
Electrical data	Power supply	12 ÷ 36	V DC
	PWM switching frequency	20	kHz
	Max. continuous output current	3	A
	Max. peak output current	10	A
	Max. encoder frequency	200	kHz
Software data	Program memory (16 Bit access)	256 x 8	kByte
	Sampling period	500	µs
	Number of programs	15	
	Lines per program	50	
Communication data	Number of indexes (acceleration, speed, distance)	50	
	Interface	RS232 / RS485 / RS485easy-Bus	
	Status display	3 LED's	
	Optional inputs (5V pull-up standard, or 24V pull-down on request)	12	
	Optional outputs (6 x 50V/500mA open collector, 2 x TTL level)	8	
	Program and parameter editor	integrated ASCII terminal	
	Program up-date	via serial interface	
	Application and parameter save / load	via serial interface	
	Starting position function	via encoder Z-index via external sensor	
Temperature rating	Operating temperature	0 ... + 55	°C
	Storage temperature	- 20 ... + 80	°C

Note: The Motion Controller is supplied with detailed operating instruction manual for installation and start-up.

General description

Le MCDC 3603 Motion Controller with its compact, open frame design includes a PWM servo amplifier and is ideal for the control of our DC-Micromotors.

Technology

The motion controller is based on a fast, powerful 16 bit microcomputer system. This guarantees high dynamics, precise positioning and quiet running, regardless of the motor type used.

The well thought-out design and consistent application of SMD technology, ensures a very compact device. The specially developed user software offers high flexibility and simple handling.

Application field

Developed with the use of state-of-the-art technology, the motion controller is suitable for a wide range of applications: insertion and handling machines, machine tools, robots, X/Y tables, drive and automation systems in medical technology, chemical and food industry, etc.

Programming

One of the most important objectives in the development of this unit was to keep operation as simple as possible.

This has been attained with the use of just a few, highly efficient functions. Manual balancing or potentiometers are no longer required.

Menu-guided program and parameter-editing functions are already integrated for operation with an ASCII terminal. In place of internal menu management, the clearly structured command set can be simply integrated into a customer-specific interface, e.g. with Visual Basic, Lab View, Pascal, C++, etc.

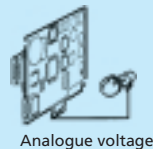
Any PC with Windows operating system can be used as an input terminal. Program up-dates are made directly via the serial interface without changing the hardware.

Communication is made via the serial port RS232 or RS485.

Control and Interfaces

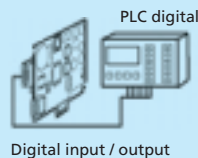
Analogue input command

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.



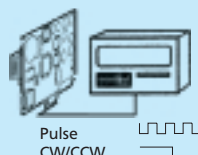
Optional digital Input / Output

Operates the motion controller in stand-alone mode. With 12 inputs and 8 outputs, programs and single commands can be executed via a simple digital signal or a BCD coded signal.



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.



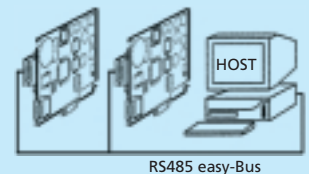
RS232 or RS485 serial interface

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



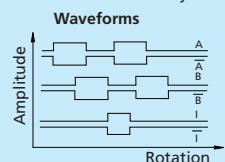
Multi-axis operation

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



Encoder with complementary outputs

Line driver encoders for noisy environments or long distances between the motor and the motion controller (no modification required).



Specifications subject to change without notice

Application description

When specifying application program parameters, the motion controller software logically takes you from one menu to the next. The system enables both simple and complex instructions to be programmed, thus giving the user the possibility of very precise and comprehensive motion control.

To emphasise how easy it is to program the motion controllers, here are the first five lines of an example application program where the following operations must be executed:

- go to a pre-defined starting position (defined via HOME function)
- move CW to position 1 (defined via INDEX 1 which includes acceleration, speed and distance instructions)
- remain in position for a fixed time
- move CCW to position 2 (defined via INDEX 2)
- send a signal to output 3
- and so on ...

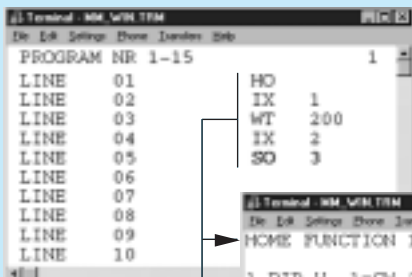


Figure 1
Main program menu showing the program sequence

Figure 2
HOME function menu with parameters

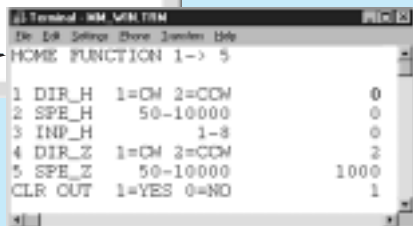
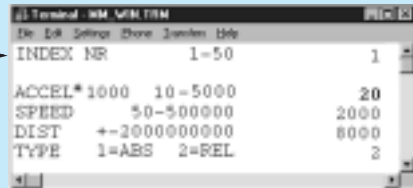


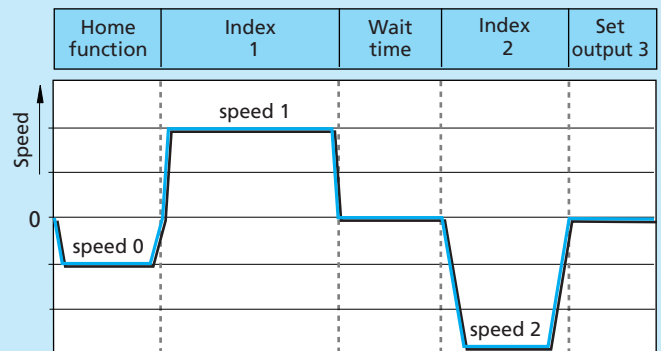
Figure 3
INDEX 1 menu with parameters



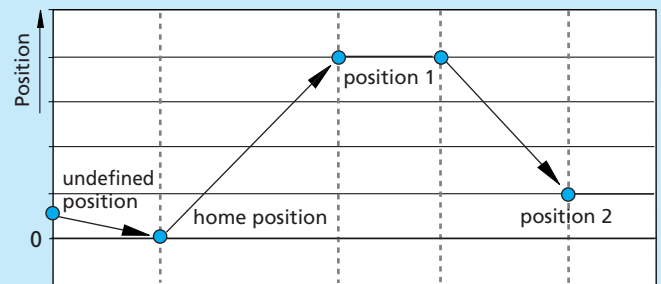
and so on...

The first five lines of this particular example application program can be plotted as shown below.

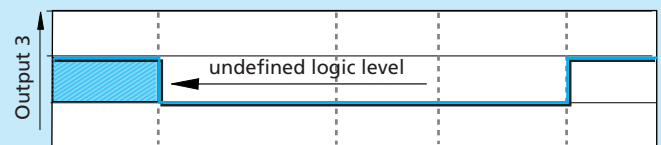
The graph 1 shows speed versus time, the graph 2 shows position versus time and the graph 3 shows at which point output 3 is activated.



Graph 1

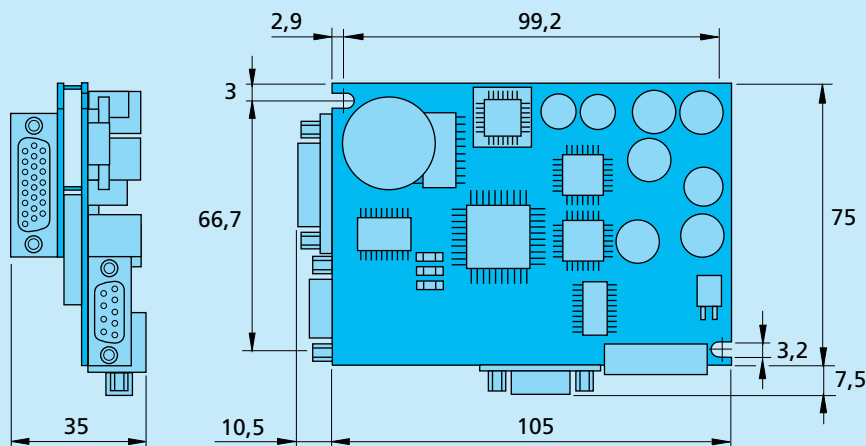


Graph 2



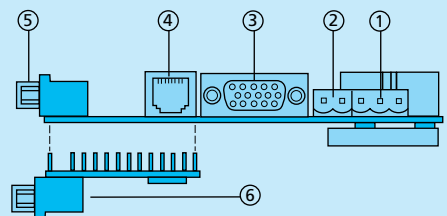
Graph 3

Dimensional drawing and connector information



Scale reduced

Weight 130 g



Connection

Function
1 Motor
2 Power supply
3 Encoder
4 Input for special function
5 RS232
6 Optional Digital Input / Output