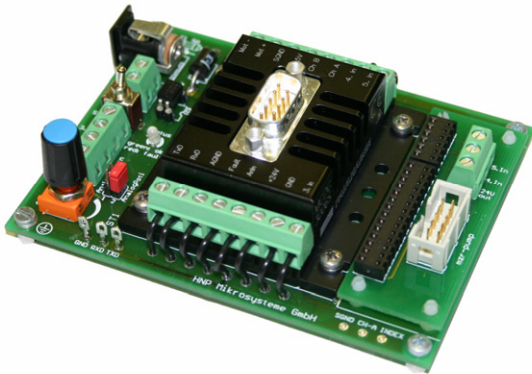


Low pressure series, Modular series

## Programmable controller S-ND

For discrete dosage and continuous delivery



- High quality pump controller for continuous and discrete delivery
- Powerful 16-bit microcontroller
- Programming of controller  
Windows®-based software »Motion Manager«
- Potentiometer for speed set
- Analog input 0-10 V
- 1 digital output, optionally programmable as input
- 3 digital inputs, 1 input is equipped with a switch
- Two colored LED status indicator
- EEPROM memory
- RS-232 interface

The controller S-ND is recommended for programmable, precise control of discrete dosage and continuous delivery tasks in combination with pumps mzr-2521, mzr-2921, mzr-2942 and mzr-4622. The 16-bit micro-

controller allows speed and position control for highly accurate dosage. The compact design on a PCB enables flexible installation. Process control link can be established via a RS-232 interface. Motor speed or flow rate can be

set either by an analog input (0-10 V) or a potentiometer mounted on the PCB. There are three digital inputs, one of them is equipped with a switch. Programs for dosage can be saved in the memory.

### Technical Data

Control	PI-controller, speed and position control
Supply voltage $U_B$	24 V DC (12 – 30 V)
Speed	1 – 6000 rpm
Power	DIN 45323 socket, screw terminal
Pump connector	pin headers, 10-pole
Serial interface	RS-232, SUB-D plug, 9-pole
Input # 1 (speed)	0 – 10 V
Fault output (input # 2)	Open collector max. $U_B$ / 30 mA no error: connected to GND as input: low 0...0.5 V / high 4 V... $U_B$
Digital inputs # 3, 4, 5	low 0...0.5 V / high 4...30 V input # 3 with switch
Program memory	6600 Bytes
Protective class	IP 20
Measurements (L x B x H)	approx. 112 x 84 x 36 mm
Weight	approx. 170 g

Subject to technical changes.

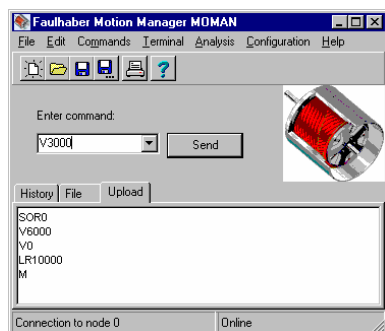
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## Software



All motor parameters for pump control can be set and saved with the software »Motion Manager« operating under Windows®. The program language is ASCII-based. Dosage programs can easily be typed on a computer and transferred to the EEPROM.

Several sample programs are supplied such as the triggering of different dosage programs with the internal PCB switches.

## Configuration

```
SOR 0 ;RS-232
SOR 1 ;potentiometer
      ;or 0-10 V
```

Set interface

```
V3000 ;speed 3000 rpm
V0    ;stop
```

Flow rate set via speed control

```
LR640 ;load 10 revolutions
M     ;start positioning
```

Dosage

```
SP6000 ;set maximum speed
AC500  ;set acceleration
LPC400 ;load peak current
LCC200 ;load cont. current
```

Set motor parameters

```
GV ;get command velocity
⇒ 3000
GN ;get actual velocity
⇒ 2998
GRC ;get actual current
⇒ 200
POS ;get actual position
⇒ 640
```

Retrieve parameters and motor data

```
EEPSAV ;save configuration
```

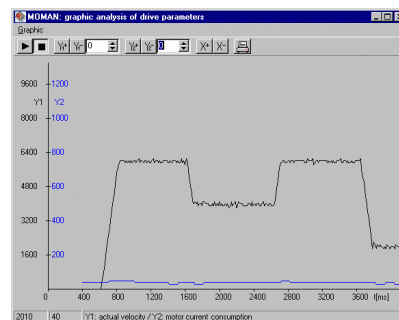
Save parameters to EEPROM

## Programming

```
PROGSEQ ;start program
A1      ;label 1
V1000  ;speed 1000 rpm
DELAY 100 ;wait 1 sec
NP     ;notify position
LR 6400 ;load 10 revolutions
M     ;start motion
JMP1   ;jump to label 1
END    ;end program
```

Dosage program

## Graphic online analysis



Sample chart: speed and motor current

## Mode of operation

```
CONTMOD standard mode
APCMOD  analog position
         control mode
STEPMOD stepper motor mode
```

Selection of control mode

## Item number

66 02 01 01

controller S-ND for pumps mzs-2521 / mzs-2921 / mzs-2942 / mzs-4622, null-modem cable, software »Motion Manager«, sample programs

## Accessories

*Power supply*

external power supply 24 V DC, input voltage 100–240 V AC 50/60 Hz, with connector for controller S-ND

*Multiplexer module*

simultaneous operation of up to 255 pumps with a single RS-232 interface