Low pressure series

Programmable controller S-ND

for discrete and continuous dosage

- High-quality pump controller for continuous and discrete dosage
- Powerful 16-bit microcontroller
- Programming of controller with Windows® Software »Motion Manager«
- Potentiometer for speed set
- Analog input 0-10 V
- 1 digital output, optionally programmable as input
- 3 digital inputs with switches
- EEPROM memory
- RS-232 interface

The controller S-ND is recommended for high requirements in control of discrete and continuous dosage tasks in combination with a mzr-pump of the low pressure series. The 16-bit microcontroller allows speed and position control for highly accurate dosage. The compact design on a PCB offers flexible installation. Process control link can be realized via a RS-232 interface. Motor speed or volume flow can be set either by an analog input (0-10 V) or a potentiometer mounted on the PCB. Three digital inputs are equipped with switches. Programs for dosage can be saved in the memory.

Technical Data

Control	PI-controller, speed and position control
Supply voltage U_B	12 – 24 V
Speed	1 – 6 000 U/min
Power	DIN 45323 socket, terminal screw, pin plug 4 mm
Pump connector	10-pole socket
Serial interface	RS-232, SUB-D plug 9-poles
Protection class	IP 20
Input # 1 (speed)	0 – 10 V
Error 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
Program memory	7936 Bytes
Measurements (L x W x H)	approx. 105 x 85 x 36 mm
Weight	approx. 170 g

Subject to technical changes.

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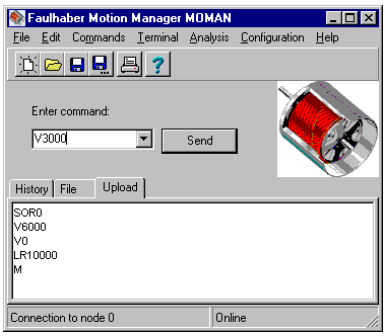
Software



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

Several sample programs are supplied such as triggering 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
```
Control volume flow 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

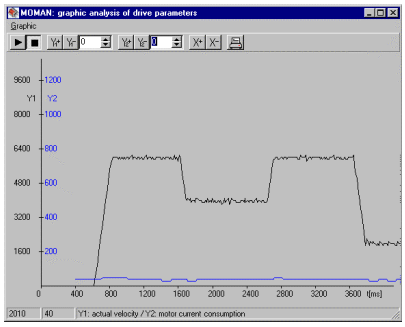
```
GV        ;get command velocity
⇒ 3000
GN        ;get actual velocity
⇒ 2998
GRC       ;get actual current
⇒ 200
POS       ;get actual position
⇒ 640
```
Retrieve parameters and motor data

```
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
```
Choose mode of operation for control

Item number

66 02 01 00	Controller S-ND pumps low pressure series, zero modem cable, software »Motion Manager«, sample programs

Accessories

Power supply	External 24 V power supply 100–240 V AC 50/60 Hz with connector for controller S-ND
Multiplexer module	Operation of up to 255 pumps with a single RS-232 interface