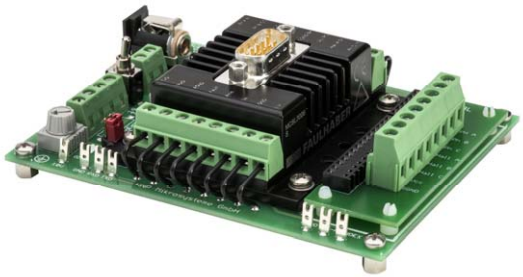
HNP Mikrosysteme

Micro annular gear pumps with brushless motor
Programmable controller S-BL
For discrete dosage and continuous delivery



- High quality pump controller for continuous delivery and discrete dosage
- For mzr-pumps with special brushless motor
- Programming of controller with Windows® software »Motion Manager«
- Potentiometer for speed set
- Analog input 0-10 V
- 1 digital input, input is equipped with a switch
- 1 digital output, optionally programmable as input
- Two colored LED status indicator
- EEPROM memory
- RS-232 interface

The controller S-BL is recommended for high requirements in control of discrete and continuous delivery tasks in combination with a mzr-pump with special brushless motor.

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 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. 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	screw terminal, 8-pole
Serial interface	RS-232, SUB-D plug, 9-pole
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	low 0...0.5 V / high 4...30 V input # 3 with switch
Program memory	6,600 Bytes
Protective class	IP 20
Dimensions (L x W x H)	approx. 112 x 85 x 36 mm
Weight	approx. 170 g

Subject to technical changes.

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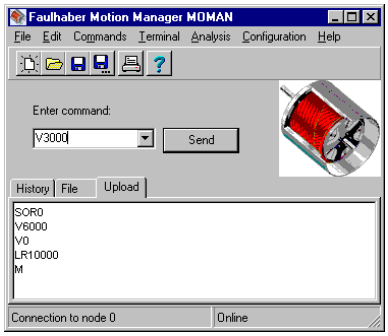
Software



All motor parameters for pump control can be set and saved with »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

```
SOR0      ;RS-232
SOR1      ;potentiometer
          ;or 0-10 V
```
Set interface

```
V3000     ;speed 3000 rpm
V0        ;stop
```
Flow rate set via speed control

```
LR10000   ;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

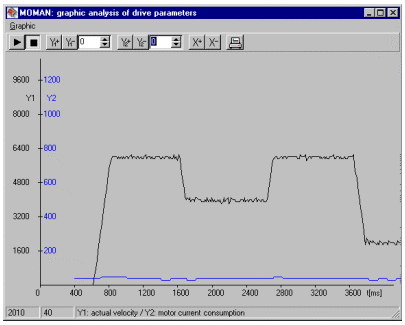
```
GV        ;get command velocity
⇒ 3000
GN        ;get actual velocity
⇒ 2998
GRC       ;get actual current
⇒ 200
POS       ;get actual position
⇒ 1000
```
Retrieve parameters and motor data

```
EEPSAV    ;save configuration
```
Save parameters to EEPROM

Programming

```
PROGSEQ   ;start program
A1        ;label 1
V1000     ;speed 1000 rpm
DELAY100  ;wait 1 sec
NP        ;notify position
LR 10000  ;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 the control mode

Item number

66 02 01 05	controller S-BL for mzr-pumps with special brushless motor, 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-BL
Multiplexer module	simultaneous operation of up to 255 pumps with a single RS-232 interface