

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 mzp-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 mzp-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.

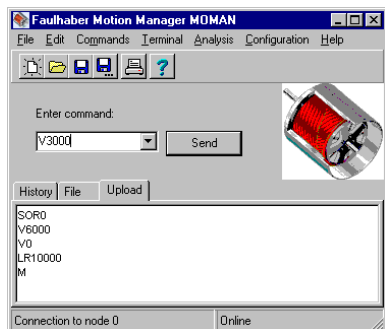
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## Software



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
```

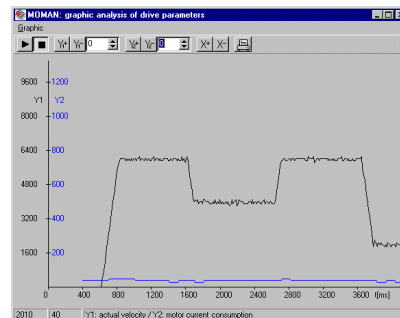
Save parameters to EEPROM

## 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 mzi-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