

Low pressure series

Programmable controller S-HD

For discrete dosage and continuous delivery



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

The controller S-HD is recommended for high requirements in control of discrete dosage and continuous delivery tasks in combination with mzs-pump mzs-7223 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 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. For the three digital inputs there is a screw terminal. Programs for dosage control 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 connection	screw terminal; pin headers 10-pole
Serial interface	RS-232, SUB-D plug, 9-pole
Protective 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	6,600 Bytes
Dimensions (L x W x H)	112 x 85 x 36 mm
Weight	approx. 175 g

Subject to technical changes.

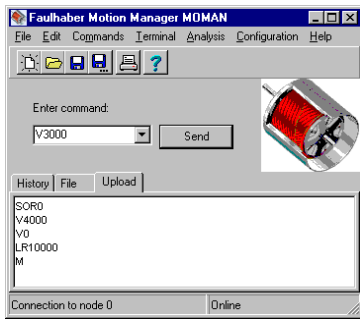
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Software



All motor parameters for pump control can be set and saved with the Windows® software »Motion Manager«. 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 digital inputs.

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

```
LR4000 ;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
```

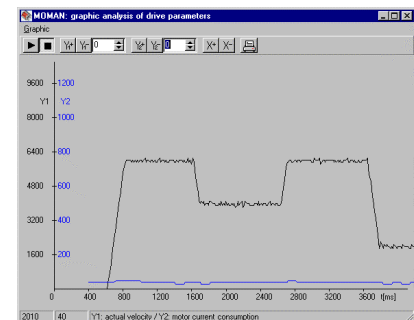
Save parameters to the EEPROM

Programming

```
PROGSEQ ;start program
A1      ;label 1
V1000  ;speed 1000 rpm
DELAY 100 ;wait 1 sec
NP      ;notify position
LR 4000 ;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 03

controller S-HD for mZr-pumps with motor encoder with Line Driver, 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-HD

Multiplexer module

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