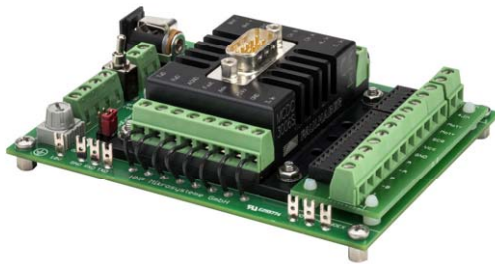


## Programmable controller S-HD-KL

For discrete dosage and continuous delivery



- High quality pump controller for continuous and discrete delivery
- For mzs-pumps mzs-2909 Ex, mzs-4609 Ex, mzs-7209 Ex, mzs-7259 Ex
- Powerful 16-bit microcontroller
- Programming of controller
- Windows®-based 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-KL is recommended for high requirements in control of discrete dosage and continuous delivery tasks in combination with Ex-pumps mzs-2909 Ex / 4609 Ex / 7209 Ex and mzs-7259 Ex.

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
Serial interface	RS-232, SUB-D plug, 9-pole
Protective class	IP 20
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	6,600 Bytes
Dimensions (L x W x H)	approx. 112 x 85 x 36 mm
Weight	approx. 180 g

Subject to technical changes.

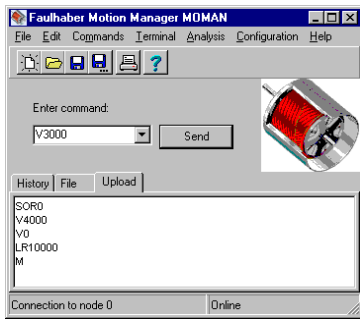
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## Software



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 2 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
```

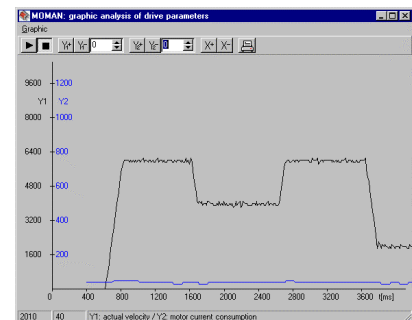
Save parameters to the EEPROM

## Programming

```
PROGSEQ ;start program
A1      ;label 1
V1000  ;speed 1000 rpm
DELAY 100 ;wait 1 sec
NP      ;notify position
LR 8000 ;load 4 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 04

controller S-HD-KL for Ex-pumps mzs-2909 Ex, mzs-4609 Ex, mzs-7209 Ex, mzs-7259 Ex, 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-KL

*Multiplexer module*

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