

# SYMAX

## Spetec Syringe Pump



The Spetec syringe pump is used for metering fluids in the microliter and nanoliter range. Its core components consist of the stepper motor drive, high-precision carriage, adjustable syringe holder, and replaceable syringe. Thanks to the high resolution of 25,600 steps per revolution, individual steps during the movement sequence are barely perceptible.

Both disposable and metal-free precision syringes of volume up to 50 ml can be used. The smallest volume that can be delivered on each individual pulse when standard syringes are used is 0,004 nl. Depending on the size and diameter of the employed syringe, the total amount delivered per minute can be adjusted between 0,5 nl and 44 ml per minute.

### Features

- **Unrestricted choice of syringes thanks to adjustable syringe holder**
- **Gearless stepper motor drive**
- **Control via PC software by default**
- **Individual control of multiple pumps**
- **USB-RS485 interface**
- **LED status display**

### Applications

- **Metering of microvolumes**
- **Long-term trials**
- **Extremely high-precision filling of fluids**

|   | Order number   |
|---|----------------|
| <b>Symax with evaluation kit</b>                    | <b>10-0102</b> |
| • Symax syringe pump with adjustable syringe holder |                |
| • Electrical connection kit                         |                |
| • Operating instructions and software               |                |
| • USB interface                                     |                |
| • Power supply                                      |                |
| • USB cable   |                |
| • 5 ml PP syringe                                   |                |

|   | Order number   |
|---|----------------|
| <b>Symax without evaluation kit</b>                 | <b>10-0103</b> |
| • Symax syringe pump with adjustable syringe holder |                |
| • Usable as additional channel                      |                |
| • 5 ml PP syringe                                   |                |



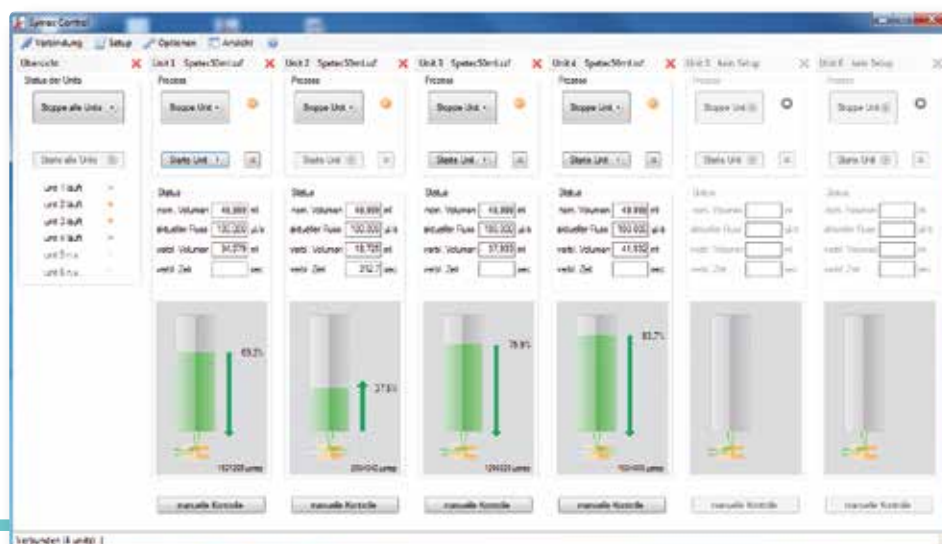
## Technical Data SYMAX

| Mechanical Data                           |  |
|---|--|
| Dimensions LxWxH (without syringe holder) | 270 x 95 x 85 (mm)   |
| Weight                                    | 2.100 g  |
| Maximum stroke                            | 91,5 mm  |
| Minimum feed rate                         | 0,248 nm/s   |
| Maximum feed rate                         | 1,24 mm/s  |
| Smallest step resolution                  | 24,8 nl of feed  |
| Accuracy                                  | +/- 2%   |
| Reproducibility                           | +/- 2%   |
| Transverse force                          | 100N at 0.0254 mm/s  |
| Extendable                                | Up to six individually control-able channels per group; two groups can be operated from one PC |
| Main materials                            | Anodized aluminum<br>Powder-coated stainless steel<br>Viton® (support for syringes)            |
| Adjustable syringe holder                 | Permitted syringe diameters from 9 mm to 34 mm   |

| Electrical Data            |   |
|----------------------------|---|
| Power supply               | Input: 100 – 240 V / 50 – 60 Hz<br>Output: 24 V / 2.5 A                                     |
| Power consumption per pump | Standby current: 210 mA<br>Operating current: 420 mA  |
| Data interfaces            | RS 485 / USB  |
| Operating Conditions       |   |
| Temperature range          | +10 to +40°C  |
| Relative humidity          | 20 % to 80 %, non-condensing  |
| Suitable media             | Aqueous, acidic and alkaline media  |
| Control option             |   |
| PC-Software Symax control  | Standard application  |
| Trigger control            | Control with any trigger signals E.g. via SPS or foot switch (after software configuration) |
| LabView                    | Prepared project library for creating an own user interface (library on request)            |
| RS 485 interface           | Custom control via open protocol (DLL-data on request)                                      |

## Control via Symax Control software

- Software can be stored as desired, individual setting options
- Operable via interface with any Windows computer with USB interface
- Up to 6 pumps can be operated and configured from the same user interface
- Individually configurable syringe set
- Calculation of volumes for individual syringes
- Individual setting of syringe fill level
- Adaptable configuration of solenoid valve
- Movement to reference position
- Manual control window for the manual transport of the syringe to the required position (bleeding of syringe)
- Manual start/stop/fill
- Configuration of one-shot fluid delivery (absolute quantity)
- Specification of individual flows for metering and filling operations
- Continuous metering during a specified period (continuous flow)
- Automatic repeat cycle with individually defined rest time and repetition rate settings
- Display of syringe volume and remaining volume
- Feedback signal on termination of metering
- Specification of absolute quantities and metering via trigger signal or foot switch
- Alternatively, three trigger inputs after previous software configuration (start / stop / fill) and one output (pump running status)
- Languages: German, English
- Software and firmware updates via Internet



## SYMAX Accessories

### Order number

|  |   |
|--|---|
| <b>Syringes</b>  | <b>10-0011</b>  |
| <ul style="list-style-type: none"> <li>Included standard syringe with a volumen of 5 ml</li> <li>Material PP</li> <li>Connector Luer-Lock</li> <li>Flow rates 0,00003 µl/s to 150 µl/s</li> <li>Other syringes available on individual request</li> </ul>  |     |
| <b>Electrical connection kit (is included in 10-0102)</b>  | <b>10-0060</b>  |
| <ul style="list-style-type: none"> <li>Operating instructions and software</li> <li>USB interface</li> <li>Power supply, input: 100 – 240V AC / 50 – 60Hz, output: 24V DC / 2.8A</li> <li>USB cable</li> </ul>   |     |
| <b>3-way valve set</b>   | <b>10-0080</b>  |
| <ul style="list-style-type: none"> <li>Software controlled 3-way solenoid valve for switching between filling and dosing curtains</li> <li>Mounting block to bolt the valve to the pump</li> <li>PEEK base unit with 1/4 – 28UNF thread connections, optimally used together with Teflon tubing set</li> <li>Equipped with 1/8" tubing connector as standard</li> </ul>                    |    |
| <b>Foot switch</b>   | <b>10-0050</b>  |
| <ul style="list-style-type: none"> <li>Connection to pump's trigger input (closing contact)</li> <li>When the pump has been configured at the PC, it can be operated using a start trigger</li> </ul>  |   |
| <b>Connecting cable, 1m</b>  | <b>10-0061</b>  |
| <ul style="list-style-type: none"> <li>Cable used to connect two Symax pumps that are not mechanically coupled but are located at a distance of up to 1 m from one another.</li> <li>Cable end 1: Sub-D Female</li> <li>Cable end 2: Sub-D Male</li> </ul>   |  |
| <b>OEM network cable, 2m</b>   | <b>10-0062</b>  |
| <ul style="list-style-type: none"> <li>Cable for connection to user's own power supply (24V / 2.8A) and interface</li> <li>The pump can be operated without the electrical connection kit at the user's own RS485 interface</li> <li>The trigger signals can also be introduced</li> <li>Cable end 1: Sub-D Female</li> <li>Cable end 2: non-terminated cable for custom wiring</li> </ul> |  |
| <b>OEM trigger cable, 2m</b>   | <b>10-0063</b>  |
| <ul style="list-style-type: none"> <li>Cable for connection to user's own controller via trigger signals (3 closing contacts: meter/fill/stop; 1 output: pump operating)</li> <li>Cable end 1: Sub-D Male</li> <li>Cable end 2: non-terminated cable for custom wiring</li> </ul>  |  |