



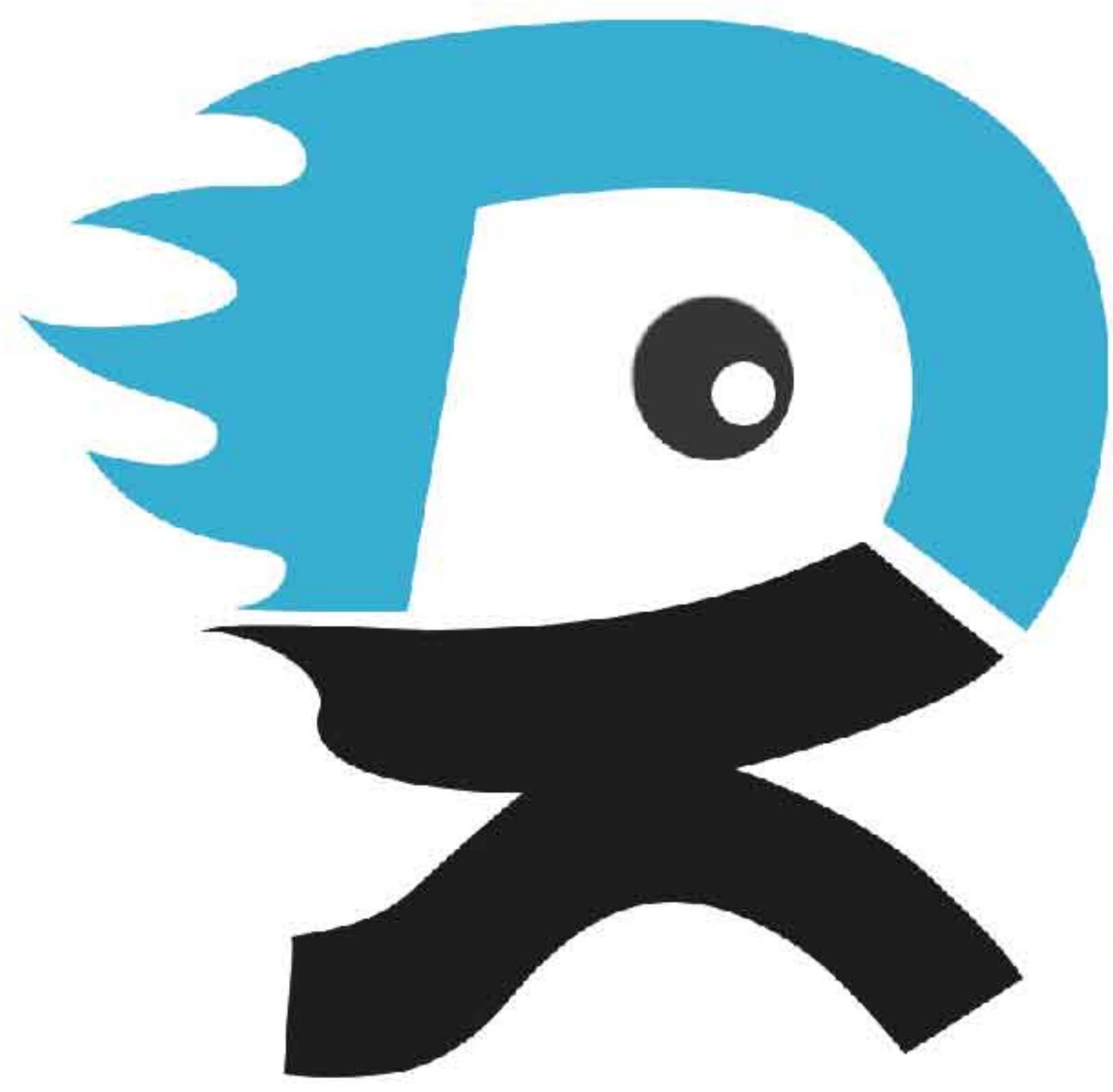
INFUSETEK

SYRINGE PUMP

- Constant Flow Syringe Pump
- Industrial Syringe Pump
- Laboratory Syringe Pump
- Split Type Syringe Pump



DK INFUSETEK CO., LTD

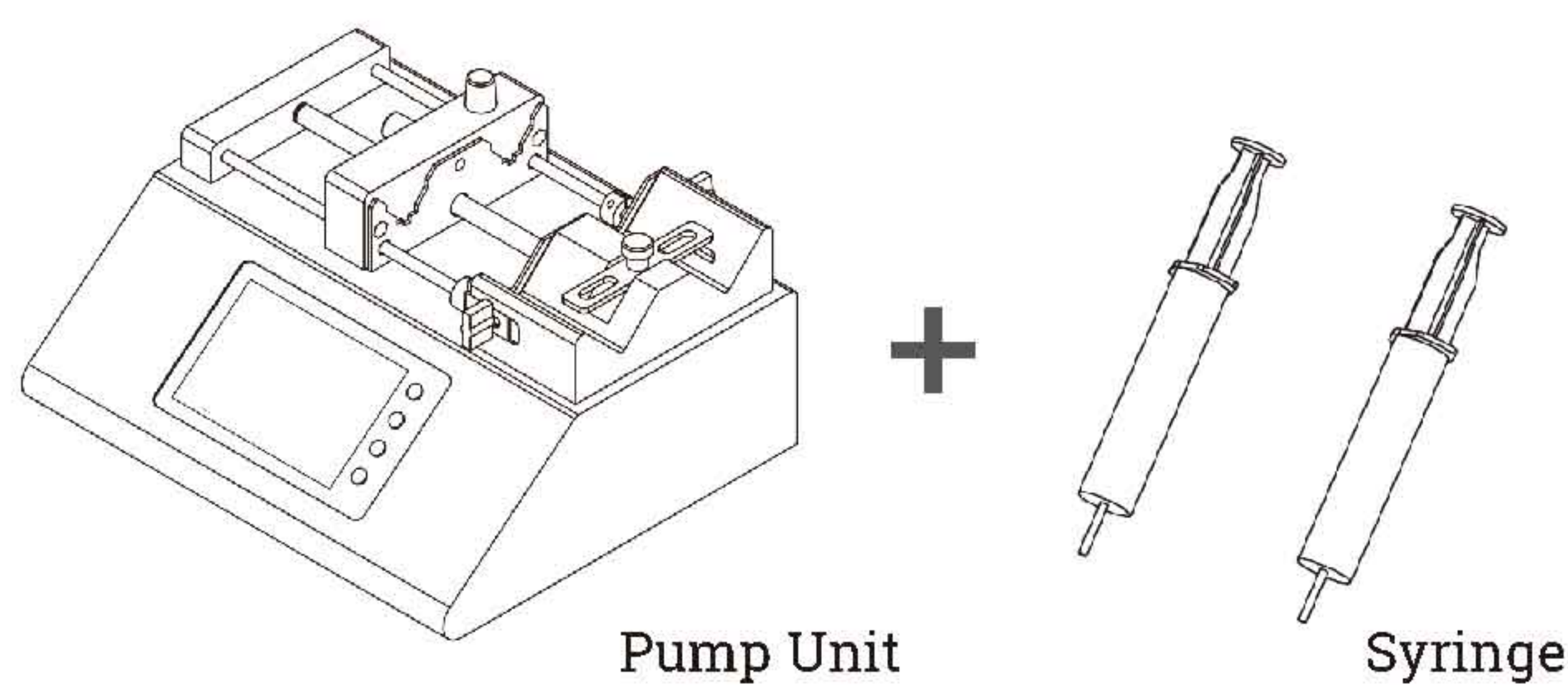


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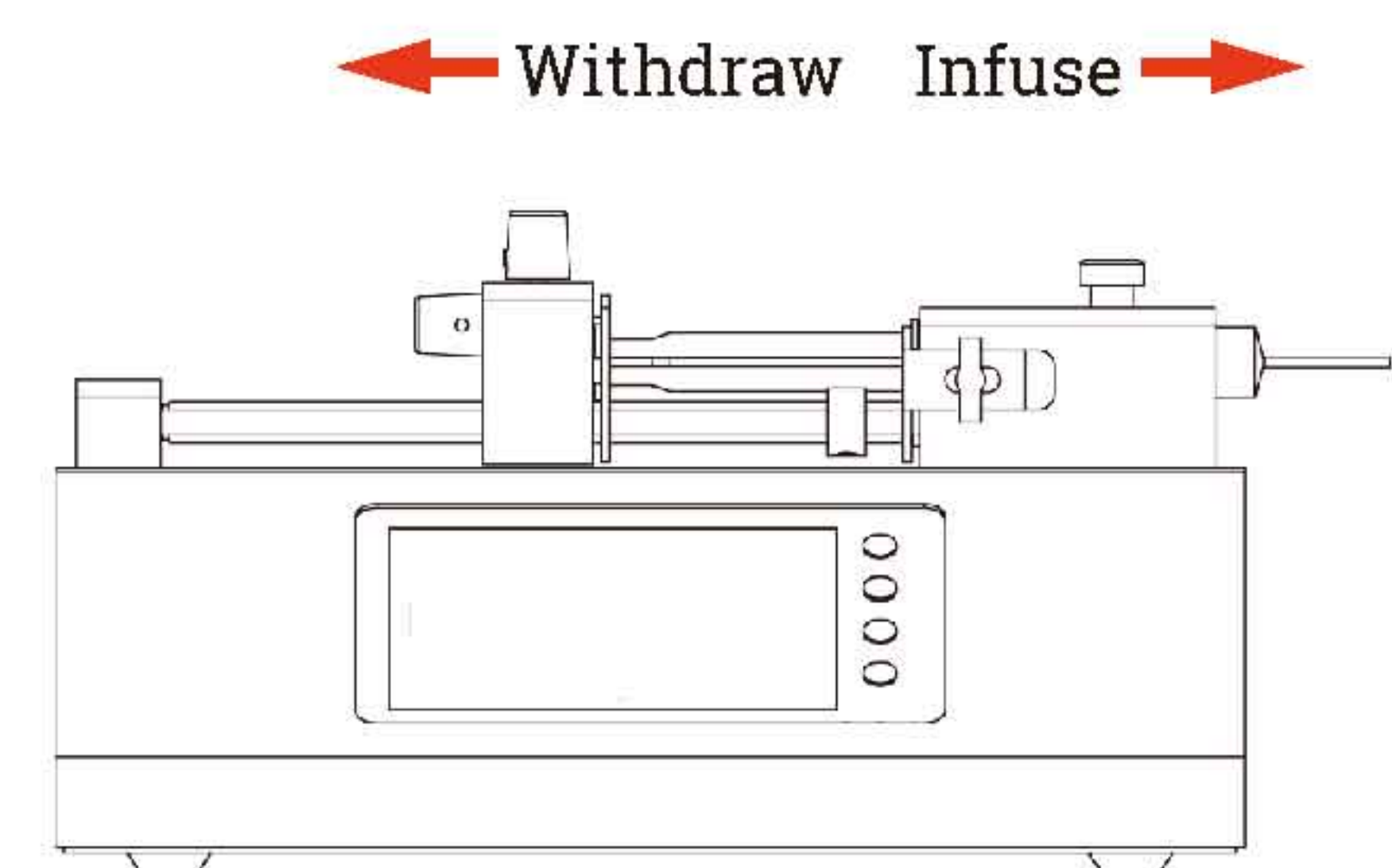
Company Profile

DK Infusetek is a global supplier of laboratory syringe pumps and industrial syringe pumps, providing professional micro-flow control solutions.

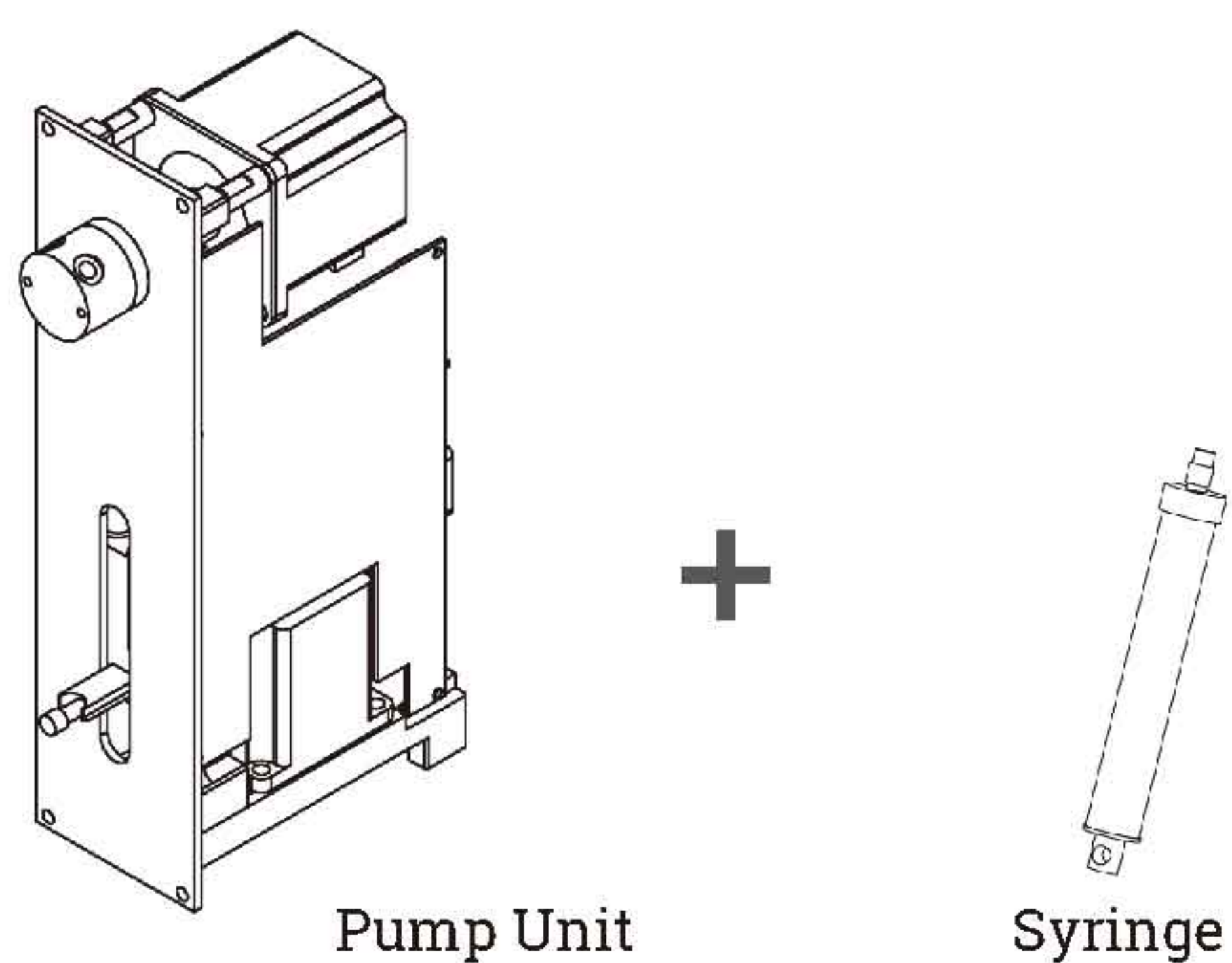
Laboratory Syringe Pump Composition



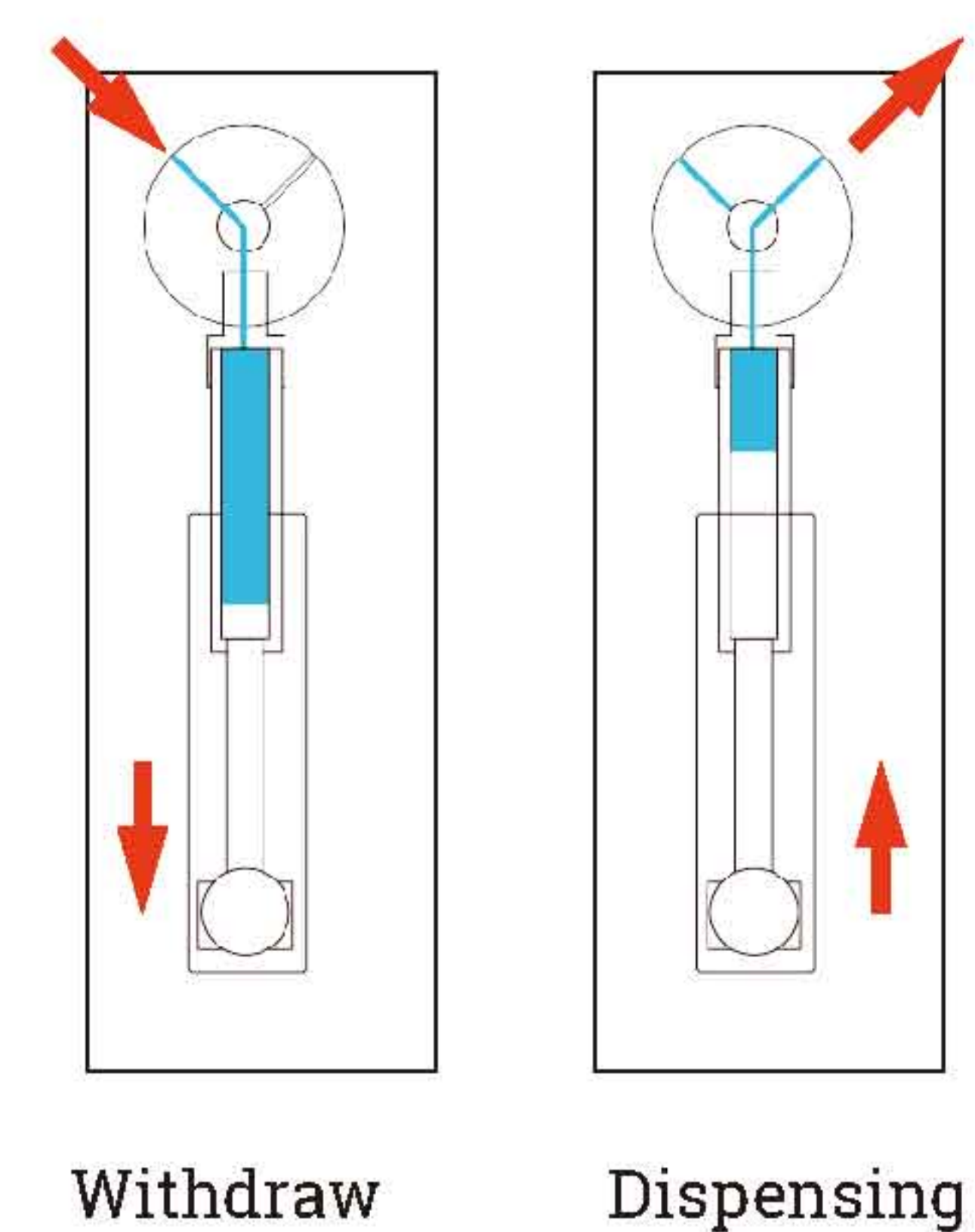
Laboratory Syringe Pump Working Principle



Industrial Syringe Pump Composition



Industrial Syringe Pump Working Principle



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Constant Flow Syringe Pump

Constinfuse[®] Constant Flow Syringe Pump



Model No.

CFSP- I

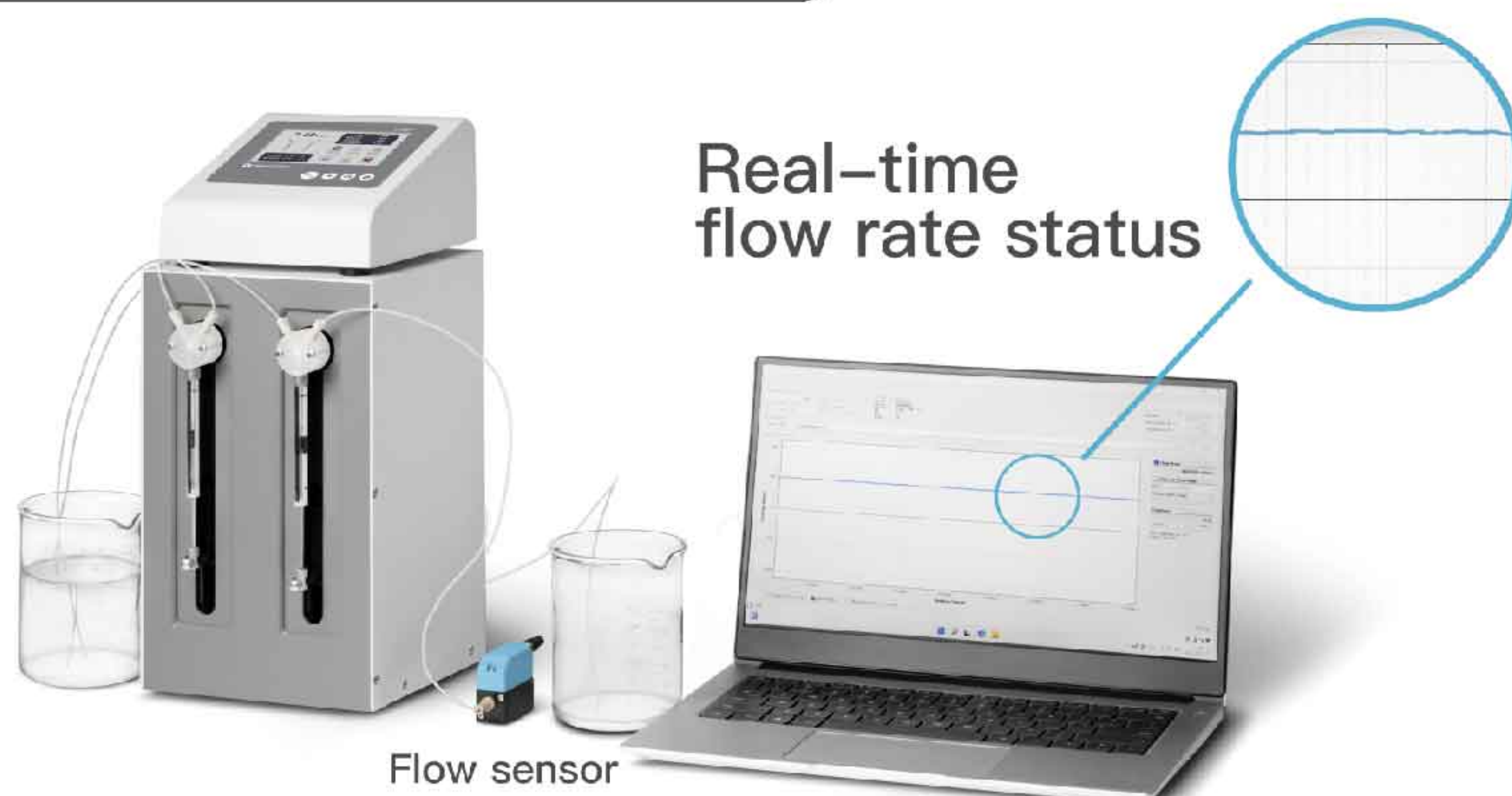
Introduction

Constinfuse[®] constant flow syringe pump, focusing on microliter volume liquids continuous transferring and dispensing. Flow rate range: 0.06uL~70mL/min, continuous flow. Support RS232 and RS485 communication for external control.

Features

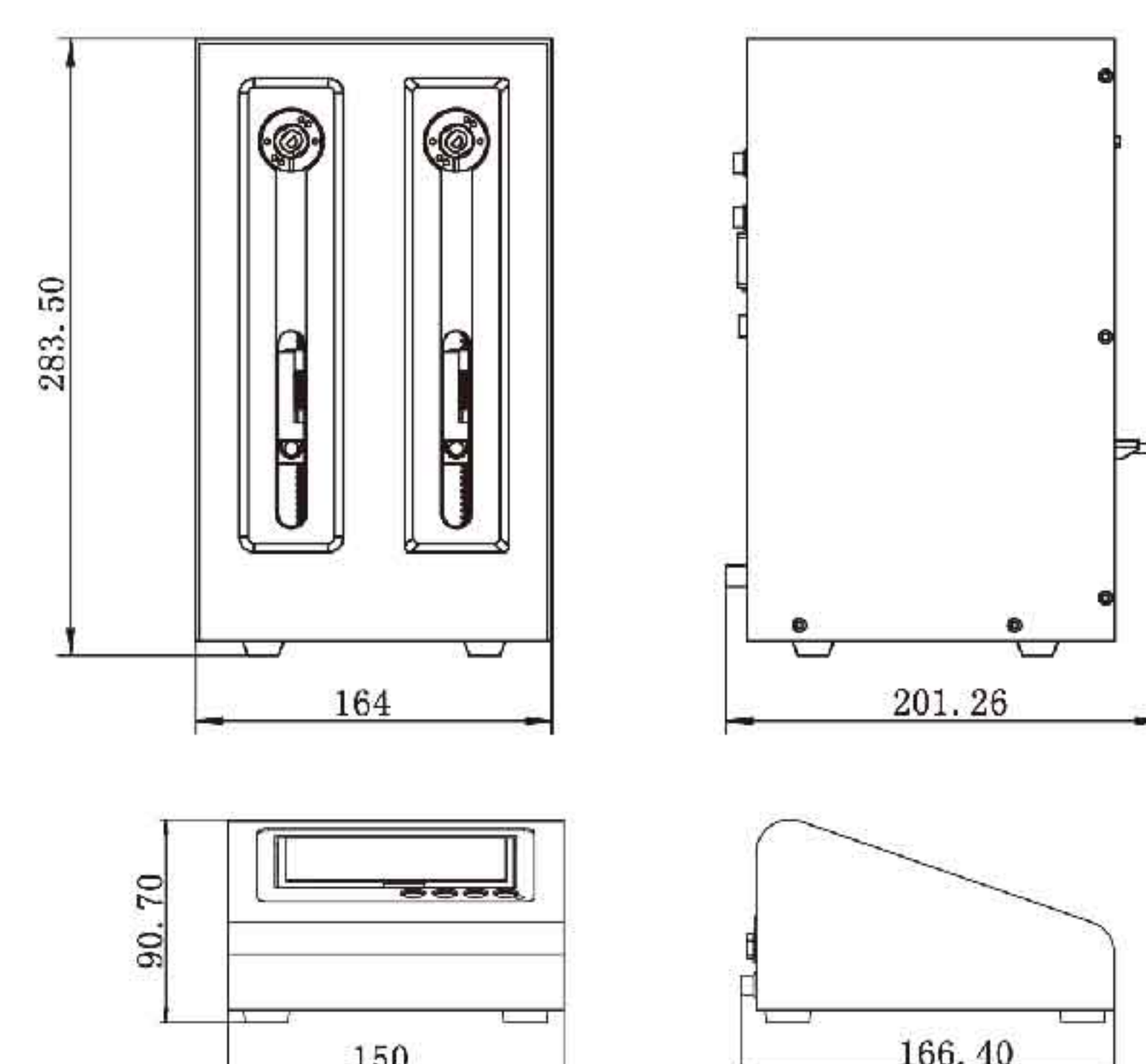
- | High precision and uninterrupted transferring of micro-liter liquids.
- | Four working modes: Continuous transferring; Fixed volume measurement; Dispensing; Timing start/stop.
- | 4.3-inch industrial-grade true color LCD screen display, friendly operation interface and synchronous simulation animation, allowing users to operate conveniently.
- | Multiple external control interfaces to meet various supporting needs.
- | Record the number of times the valve and syringe are used, which is convenient for equipment maintenance.
- | The pump unit supports "offline" operation, which enables one controller to set different parameters for pump units, which is convenient for users to use together with other equipments.
- | The controller has offline reminder and parameter synchronization function. Intelligent calibration function.
- | Closed-loop control, overload protection function, effectively protect the syringe.
- | Quiet design. 304 stainless steel spray shell.

Constant Flow Curve



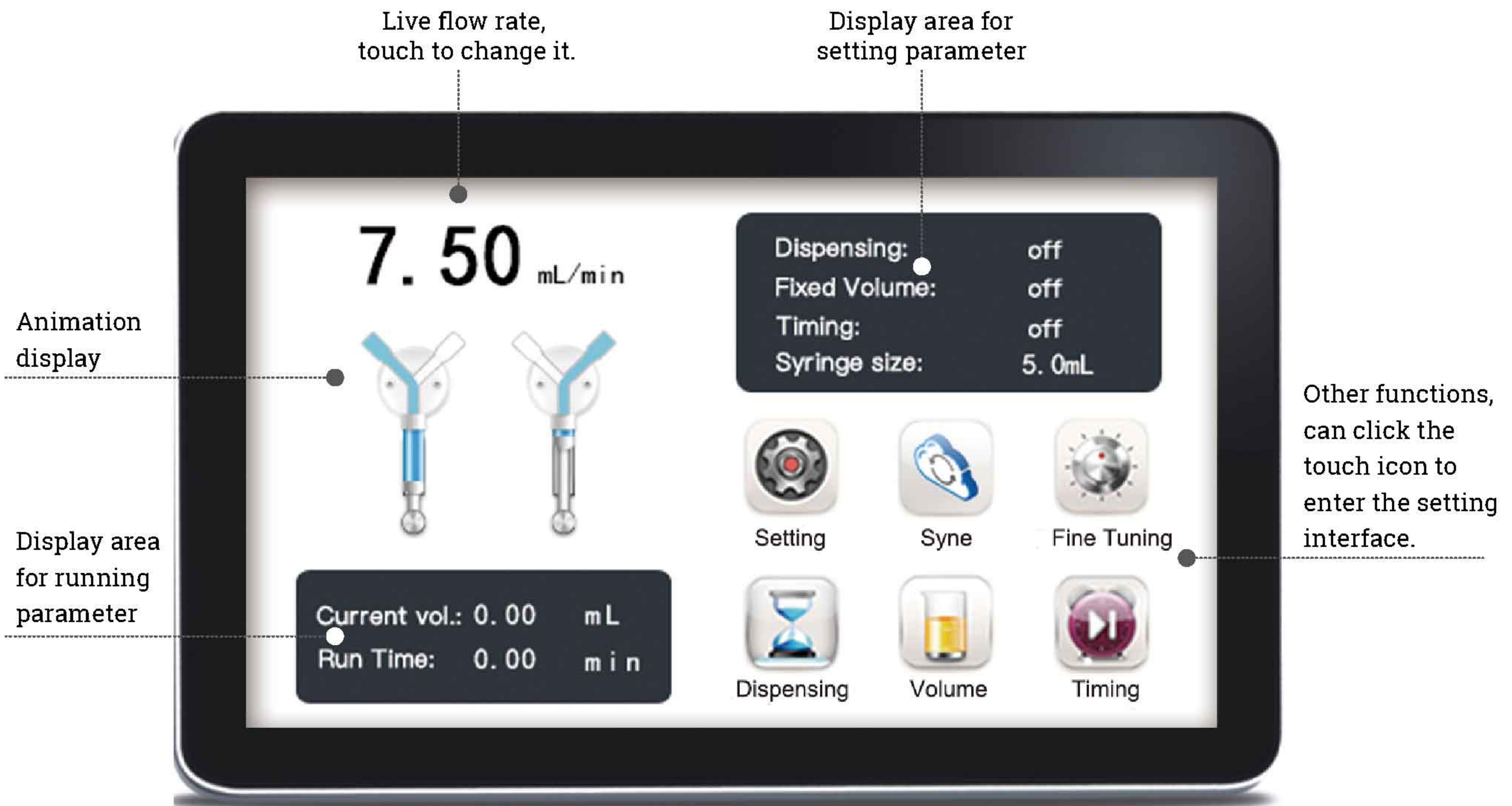
Note: 1mL syringe, 1000uL/min

Dimension Drawing (Unit: mm)



Constant Flow Syringe Pump

Interface Display



Technical Specifications

Flow rate	0.06 μ L/min-70mL/min (Pure water, and the length of the tube at the liquid inlet is less than 1 meter, and the inner diameter is 1.6mm)	Maximum pressure of liquid path	0.68MPa(High pressure above 0.68MPa, please contact us)
		Valve material	Valve body: PCTFE Valve element: PTFE
Dispensing volume range	0.1 μ L-25mL	Valve type	3 port valve
		Tube connection interface	1/4-28UNF
Accuracy	$\leq \pm 0.05\%$ (Maximum stroke, 500 μ L or more syringe, pure water at room temperature)	Syringe size	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5 mL, 5.0 mL, 10 mL, 25 mL
Communication	RS232 and RS485, support Modbus protocol, RTU mode	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
External control	Passive switch signal: Start/pause function. For example: Foot pedal switch; Active switch signal: Start/pause, stop, washing, initialization function 5-24V universal	Power supply	Pump unit: Standard 24V adapter Controller: Standard 5V adapter
		Power consumption	Controller ≤ 10 W, pump unit ≤ 60 W
Output	Indicates liquid output status (Open collector output)	Environment temperature	15 $^{\circ}$ C~40 $^{\circ}$ C(Low temperature operation requires a low temperature syringe)
Display	4.3 inch industrial-grade true color LCD screen	Relative humidity	<80%(RH)
Control	Touch screen and keypad		

Syringe	Mini. flow rate	Max. flow rate
50 μ L	0.0625 μ L/min	608.37 μ L/min
100 μ L	0.125 μ L/min	1.21mL/min
250 μ L	0.3125 μ L/min	3.04mL/min
500 μ L	0.625 μ L/min	6.08mL/min
1.0mL	1.25 μ L/min	12.16mL/min
2.5mL	3.125 μ L/min	30.41mL/min
5.0mL	6.25 μ L/min	60.83mL/min
10mL	12.5 μ L/min	70.00mL/min
25mL	31.25 μ L/min	55.00mL/min

Testing condition:

Outlet and inlet tube size is 3.2mm*1.6mm, Length is 1m, Liquid is pure water. Tube size, length and liquid will affect the flow rate.

Constant Flow Syringe Pump

Constinfuse[®] Constant Flow Syringe Pump



Model No.

CFSP-II

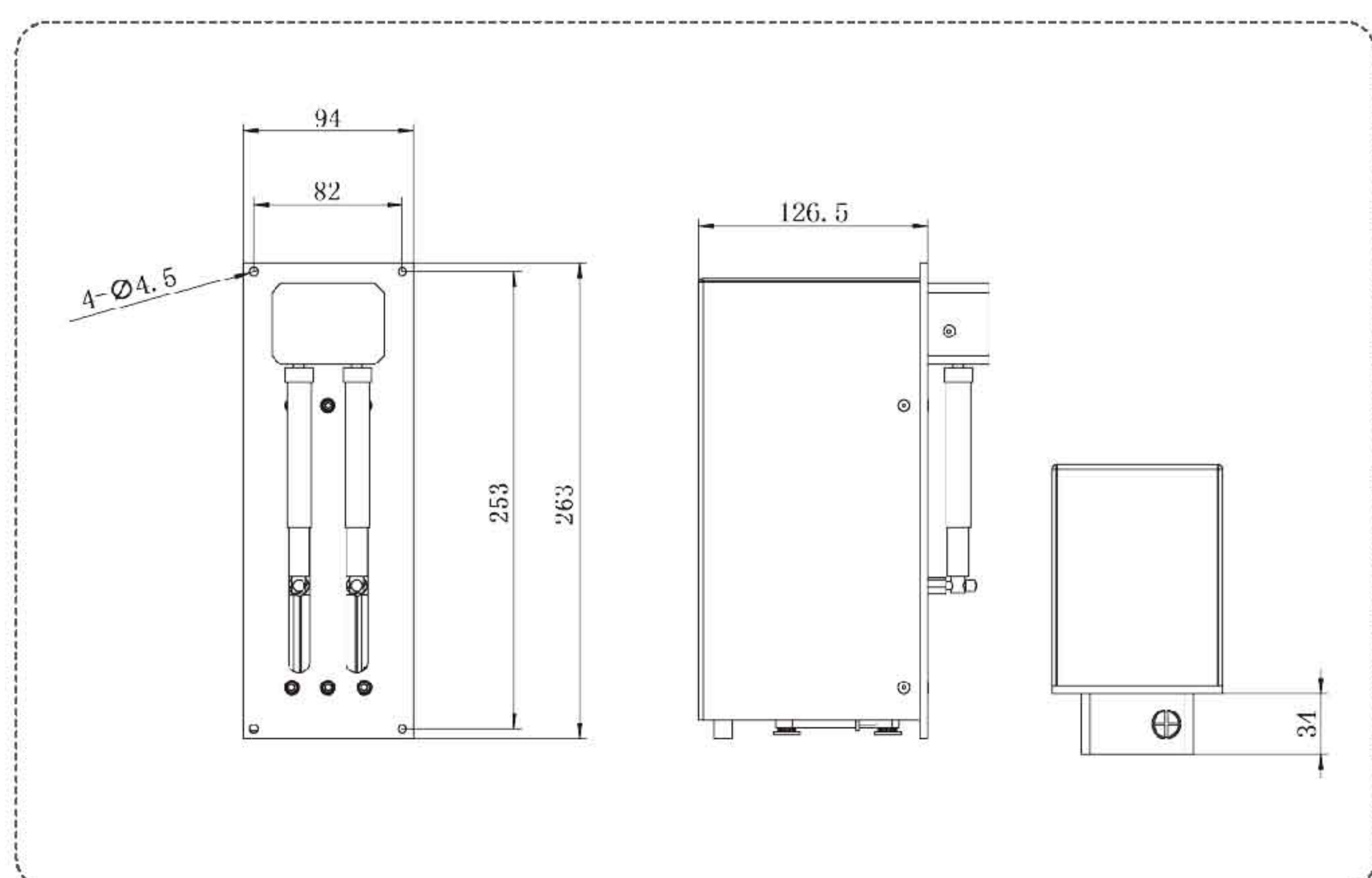
Introduction

CFSP-II constant flow syringe pump, flow rate range: 0.5uL-70mL/min, special for micro volume liquid continuous transferring or dispensing. Support RS232 and RS485 communication, also support TTL level external control interface, to achieve remote control. Compact design, special for supporting instruments.

Features

- | High accuracy and uninterrupted transferring for micro-liter fluids.
- | Three working modes: constant transferring, fixed volume measurement and dispensing.
- | Multiple external control interfaces and standard Modbus communication protocol to meet various supporting needs.
- | Record the number of times the valve and syringes used, which is convenient for equipment maintenance.
- | Closed-loop control, over-load protection function, effectively protect syringe.
- | Compact structure, convenient for matching with other equipment.

Dimension Drawing (Unit: mm)



Technical Specifications

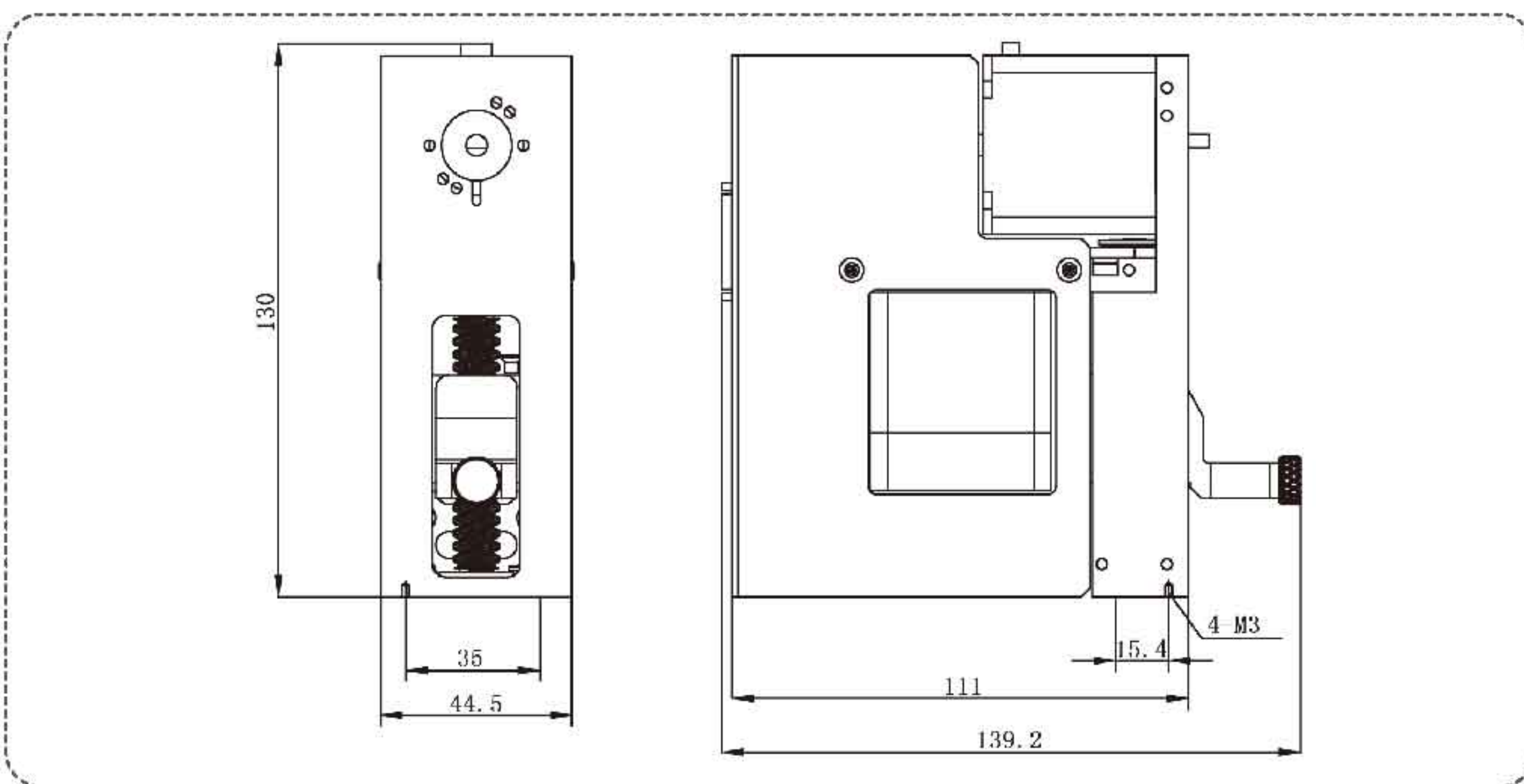
Flow rate	0.5μL/min-70mL/min (Pure water, and the length of the tube at the liquid inlet is less than 1 meter, and the inner diameter is 1.6mm)	Valve material	Valve body: PEEK, Diaphragm: FKM, Sealing ring: FKM
		Tube connection interface	1/4-28UNF
Communication interface	RS232/RS485, Modbus protocol(RTU mode)	Syringe size	50μL, 100μL, 250μL, 500μL, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL
Input	2 TTL level signal inputs, which can be configured as different external control functions	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
Output	3 TTL level signal outputs, which can be configured as different status indications	Power supply	DC24V±10%/2.5A(Peak value)
		Power consumption	≤60W
Maximum pressure of liquid path	0.2MPa	Environment temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Valves type	Electromagnetic valve	Relative humidity	<80% (RH)

Industrial Syringe Pump

SP30-1A



Dimension Drawing (Unit: mm)



Introduction

SP30-1A syringe pump is a programmable liquid handling pump module, rated stroke: 30mm. The pump can be controlled by external computer or microcontroller, to realize high precision liquid handling.

Features

| Application flexibility:

Programmable, controlled by external computer or microcontroller, suitable for a wide range of sizes syringe and valves.

| Reliable performance:

Photoelectric encoder detects out of step; controllable start speed, maximum speed and stop speed;
Programmable acceleration and deceleration slopes;
Can realize planned maintenance and replacement of syringes and valves.

| Simple way to integrate:

Support RS232/RS485/CAN communication;
Up to 15 sets of SP30-1A syringe pumps can be connected together;
Two digital inputs and three outputs for TTL level signals;
Used for synchronization with other external devices.

Technical Specifications

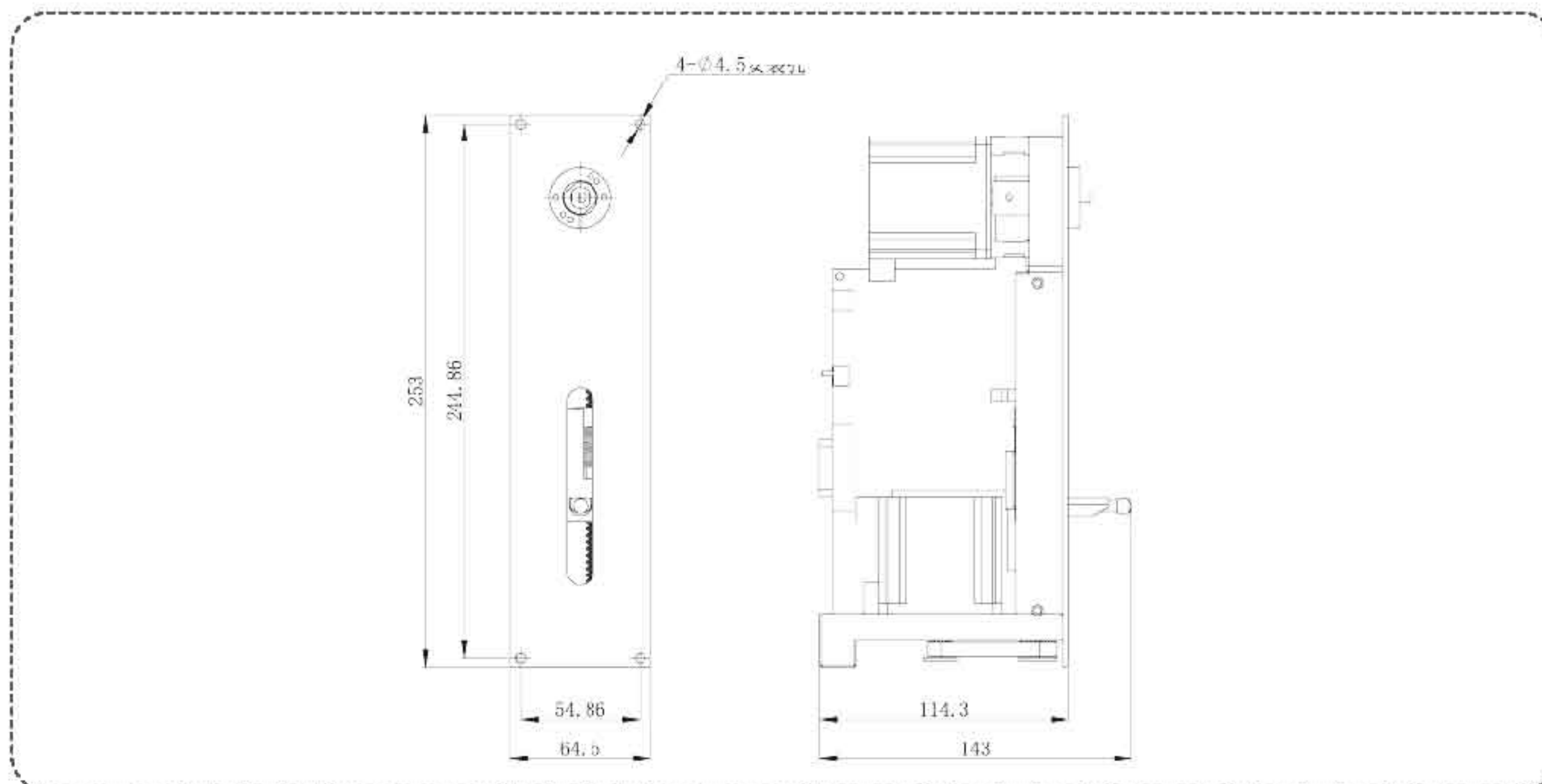
Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	30mm(3000 steps or 24000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.005mm/s-30mm/s	Addressing	UP to 15 individual addresses available(BCD switch)
Run time per stroke	1.25s-100min	Input	Two TTL level signal inputs, for restart the paused instruct
Speed resolution	0.005mm/s	Output	Three TTL level signal outputs, for synchronous external devices
Stroke resolution	0.01mm or 0.00125mm	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Valve switch time	≤ 250 ms between adjacent ports	Storage temperature	-20°C~65°C
Valves type	3 port valve, 4 port valve, 3 port distribution valve, 9 port distribution valve	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Valve material	Valve body: PCTFE Valve element: PTFE	Dimension(mm)	139.2*44.5*130 (mm)
Tubing fittings	1/4-28UNF		
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL		
Power supply	DC24V $\pm 10\%$ /1.25A		

Industrial Syringe Pump

SP60-1A



Dimension Drawing (Unit: mm)



Introduction

SP60-1A syringe pump is a programmable liquid handling pump module, rated stroke: 60mm. The pump can be controlled by external computer or microcontroller, to realize high precision liquid handling.

Features

| Application flexibility:

Programmable, controlled by external computer or microcontroller, suitable for a wide range of sizes syringe and valves.

| Reliable performance:

Photoelectric encoder detects out of step; controllable start speed, maximum speed and stop speed;
Programmable acceleration and deceleration slopes;
Can realize planned maintenance and replacement of syringes and valves.

| Simple way to integrate:

Support RS232/RS485/CAN communication;
Up to 15 sets of SP60-1A syringe pumps can be connected together;
Two digital inputs and three outputs for TTL level signals;
Used for synchronization with other external devices.

Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Power supply	DC24V $\pm 10\%$ /1.25A(Peak value)
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	60mm(6000 steps or 48000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.01mm/s-60mm/s		
Run time per stroke	1.25s-100min	Addressing	UP to 15 individual addresses available(BCD switch)
Speed resolution	0.01mm/s		
Stroke resolution	0.01mm or 0.00125mm	Input	Two TTL level signal inputs, for restart the paused instruct
Valve switch time	≤ 250 ms between adjacent ports		
Valves type	3 port valve, 4 port valve, 3 port distribution valve, 9 port distribution valve	Output	Three TTL level signal outputs, for synchronous external devices
Valve material	Valve body: PCTFE; Valve element: PTFE		
Tubing fittings	1/4-28UNF	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL	Condition temperature	15 $^{\circ}$ C~40 $^{\circ}$ C(Low temperature operation requires a low temperature syringe)
		Storage temperature	-20 $^{\circ}$ C~65 $^{\circ}$ C
Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE	Relative humidity	<80% (RH)
		Dimension(mm)	143*64.5*253
		Weight	2.20kg

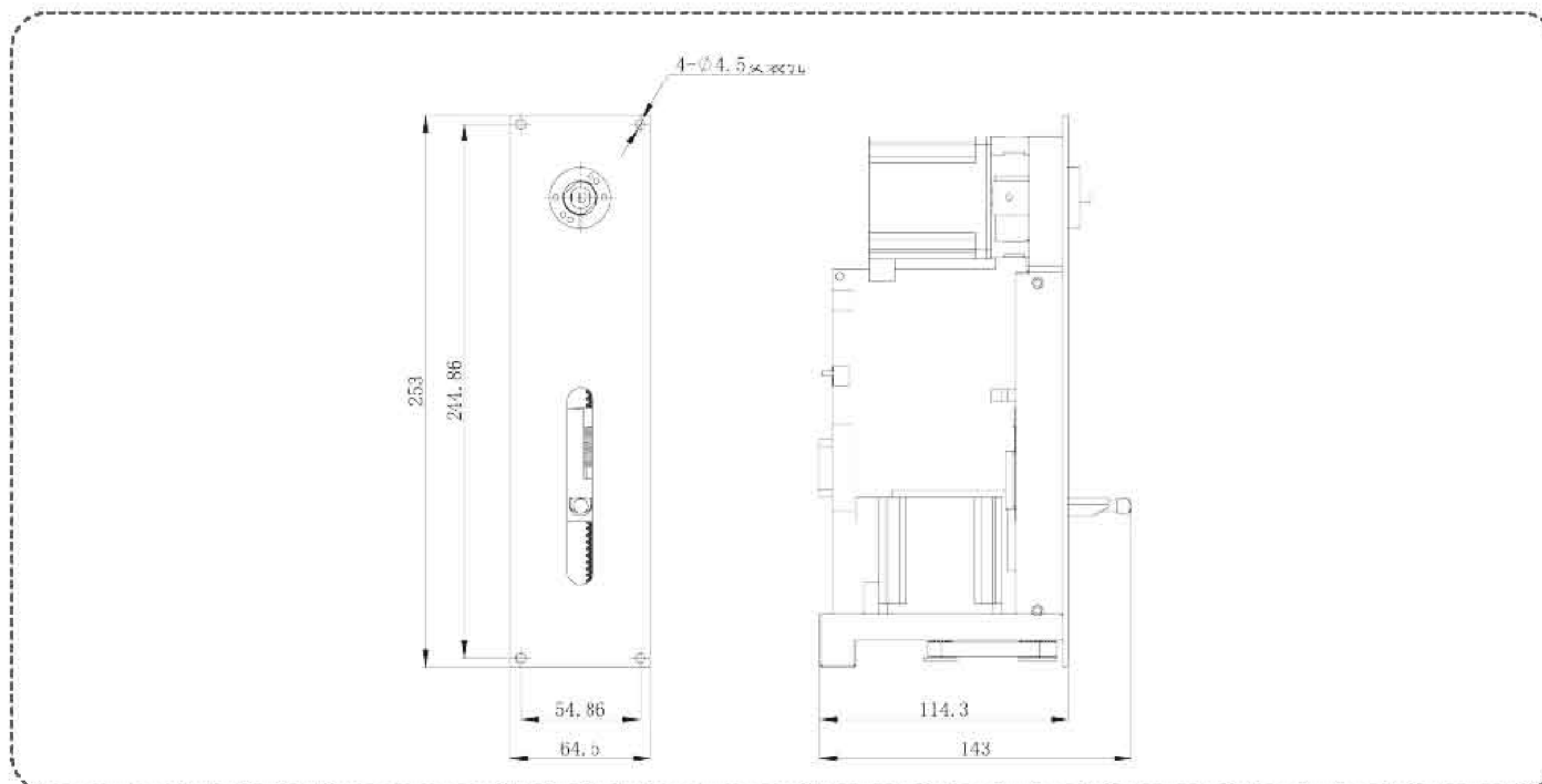
Industrial Syringe Pump

SP60-1A



SP60-1A

Dimension Drawing (Unit: mm)



Introduction

SP60-1A syringe pump is a programmable liquid handling pump module, rated stroke: 60mm. The pump can be controlled by external computer or microcontroller, to realize high precision liquid handling.

Features

| Application flexibility:

Programmable, controlled by external computer or microcontroller, suitable for a wide range of sizes syringe and valves.

| Reliable performance:

Photoelectric encoder detects out of step; controllable start speed, maximum speed and stop speed;
Programmable acceleration and deceleration slopes;
Can realize planned maintenance and replacement of syringes and valves.

| Simple way to integrate:

Support RS232/RS485/CAN communication;
Up to 15 sets of SP60-1A syringe pumps can be connected together;
Two digital inputs and three outputs for TTL level signals;
Used for synchronization with other external devices.

Technical Specifications

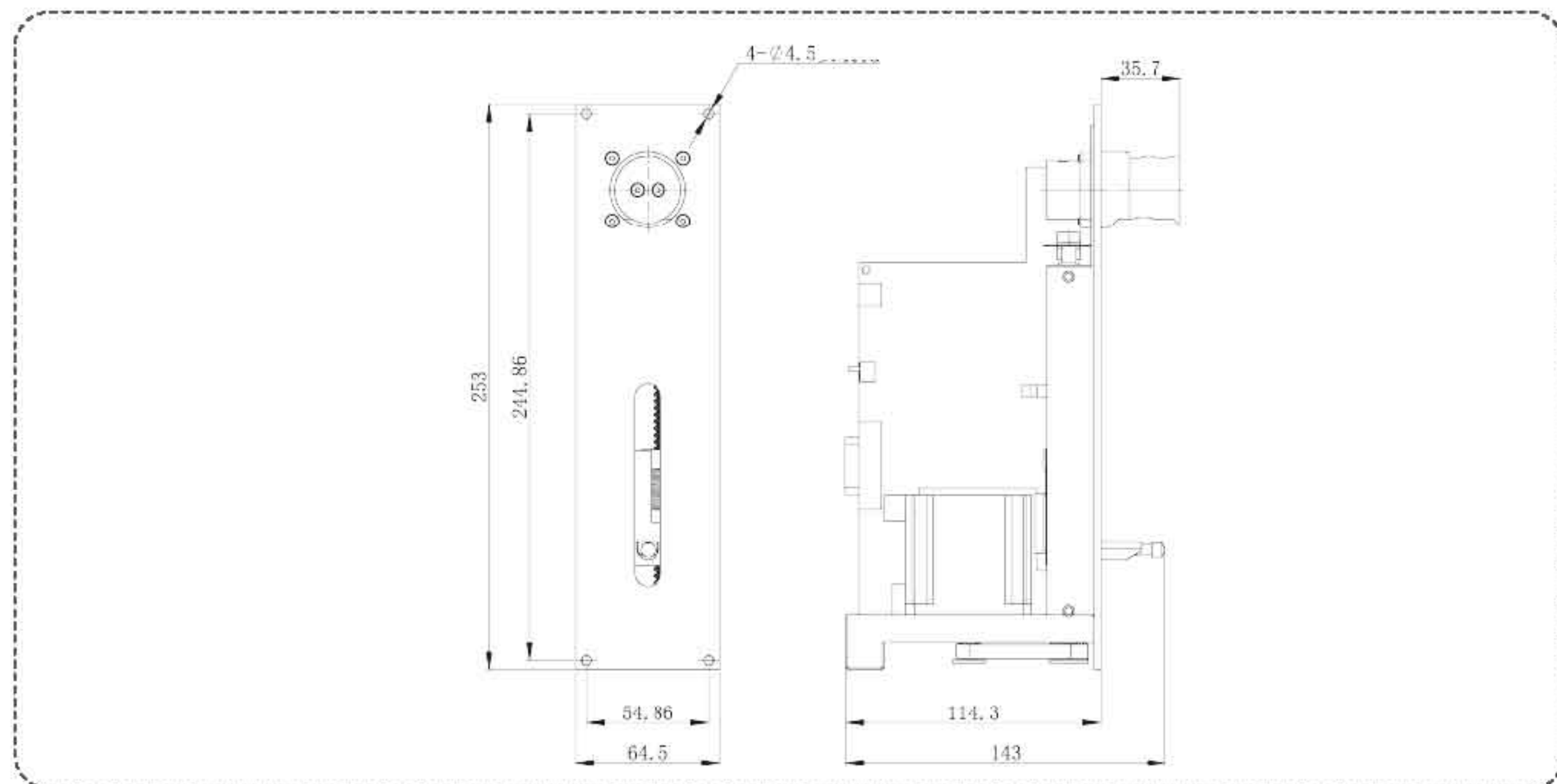
Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Power supply	DC24V $\pm 10\%$ /1.25A(Peak value)
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	60mm(6000 steps or 48000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.01mm/s-60mm/s		
Run time per stroke	1.25s-100min	Addressing	UP to 15 individual addresses available(BCD switch)
Speed resolution	0.01mm/s		
Stroke resolution	0.01mm or 0.00125mm	Input	Two TTL level signal inputs, for restart the paused instruct
Valve switch time	≤ 250 ms between adjacent ports		
Valves type	3 port valve, 4 port valve, 3 port distribution valve, 9 port distribution valve	Output	Three TTL level signal outputs, for synchronous external devices
Valve material	Valve body: PCTFE; Valve element: PTFE		
Tubing fittings	1/4-28UNF	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL	Condition temperature	15 $^{\circ}$ C~40 $^{\circ}$ C(Low temperature operation requires a low temperature syringe)
		Storage temperature	-20 $^{\circ}$ C~65 $^{\circ}$ C
Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE	Relative humidity	<80% (RH)
		Dimension(mm)	143*64.5*253
		Weight	2.20kg

Industrial Syringe Pump

SP60-1B



Dimension Drawing (Unit: mm)



Introduction

SP60-1B syringe pump is a programmable liquid handling pump module, rated stroke: 60mm. The pump can be controlled by external computer or microcontroller, to realize high precision liquid handling.

Features

Application flexibility:

Programmable, controlled by external computer or microcontroller, suitable for a wide range of sizes syringe and valves.

Reliable performance:

Photoelectric encoder detects out of step; controllable start speed, maximum speed and stop speed;

Programmable acceleration and deceleration slopes;

Can realize planned maintenance and replacement of syringes and valves.

Simple way to integrate:

Support RS232/RS485/CAN communication;

Up to 15 sets of SP60-1B syringe pumps can be connected together;

Two digital inputs and three outputs for TTL level signals;

Used for synchronization with other external devices.

Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Power supply	DC24V $\pm 10\%$ /1.25A(Peak value)
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	60mm(6000 steps or 48000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.01mm/s-60mm/s		
Run time per stroke	1.25s-100min	Addressing	UP to 15 individual addresses available(BCD switch)
Speed resolution	0.01mm/s	Input	Two TTL level signal inputs, for restart the paused instruct
Stroke resolution	0.01mm or 0.00125mm		
Valve switch time	≤ 250 ms between adjacent ports	Output	Three TTL level signal outputs, for synchronous external devices
Valves type	Electromagnetic valve		
Valve material	Valve material touching the liquid: PPS, PTFE, FPM	Max. pressure	0.1MPa
Tubing fittings	1/4-28UNF	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL	Storage temperature	-20°C~65°C
		Relative humidity	<80% (RH)
Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE	Dimension(mm)	143*64.5*253
		Weight	1.56kg

Industrial Syringe Pump

SP60-nB



Model No.

SP60-2B, SP60-3B, SP60-4B, SP60-6B, SP60-8B

Introduction

It is a programmable, open-architecture, precision liquid handling unit, which is controlled by external computer or microprocessor to realize automatic pipetting, dilution and dispensing functions.

Features

- | Simultaneous processing multiple liquids;
- | Photoelectric encoder detects of step;
- | Controllable start speed, maximum speed and stop speed;
- | Programmable acceleration and deceleration slopes;
- | Can realize planned maintenance and replacement of syringes.

Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Syringe material	Barrel material: Borosilicate glass				
Max. stroke(Steps)	60mm(6000 steps or 48000 steps)		Plunger rod material: Stainless steel				
Linear speed range	0.01mm/s-60mm/s		Plunger seal material: PTFE				
Run time per stroke	1.25s-100min	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)				
Speed resolution	0.01mm/s	Addressing	UP to 15 individual addresses available(BCD switch)				
Stroke resolution	0.01mm or 0.00125mm		Input	Two TTL level signal inputs, for restart the paused instruct			
Valve switch time	≤ 250 ms between adjacent ports	Output		Three TTL level signal outputs, for synchronous external devices			
Valves type	Electromagnetic valve		Valve body rated pressure	0.2MPa			
Valve material	Valve body: PEEK, Diaphragm: FKM, Sealing ring: FKM	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)				
Tubing fittings	1/4-28UNF	Storage temperature	-20°C~65°C				
Syringe fittings	1/4-28UNF	Relative humidity	<80% (RH)				
Power supply	DC24V $\pm 10\%$ /2.5A(Peak value)	Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL				
Communication interface	RS232/RS485/CAN		Channel number	2	3	4	6
Dimension(L*W*H)	125*94*263		126*94*263	125.5*112*252	150*133*252	125*94*263	



SP60-2B



SP60-3B



SP60-4B



SP60-6B

Industrial Syringe Pump

Programmable Syringe Pump



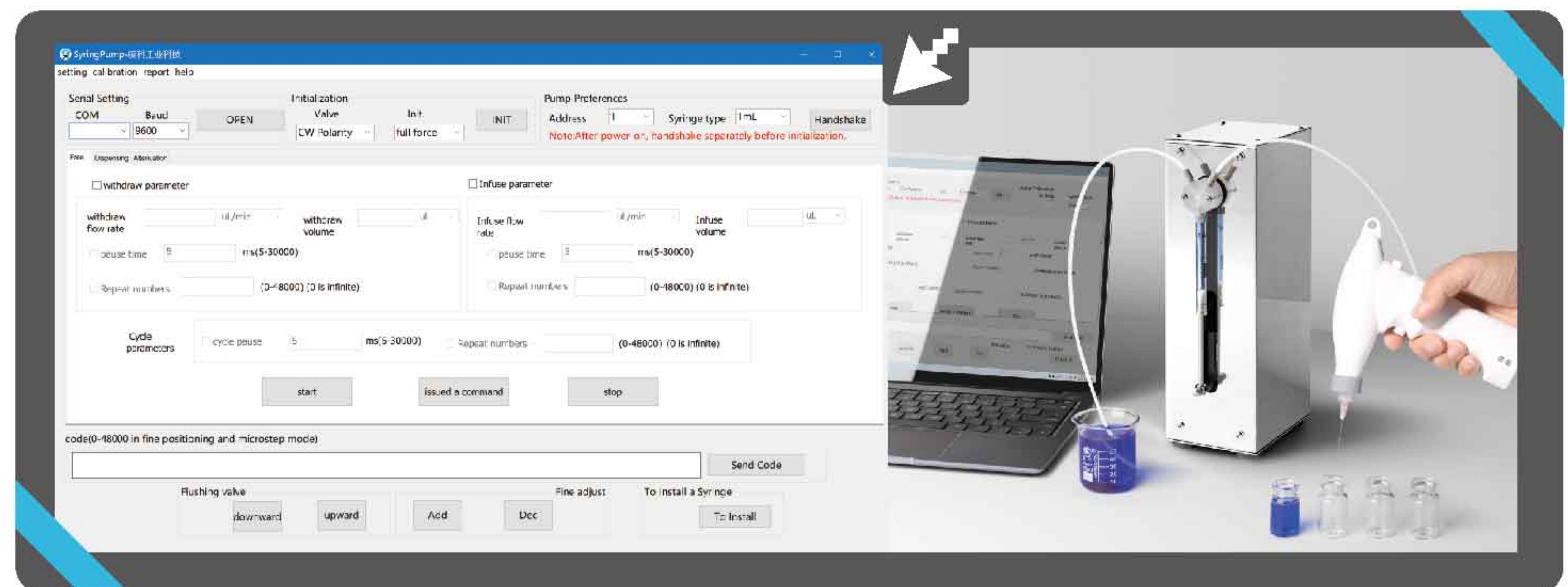
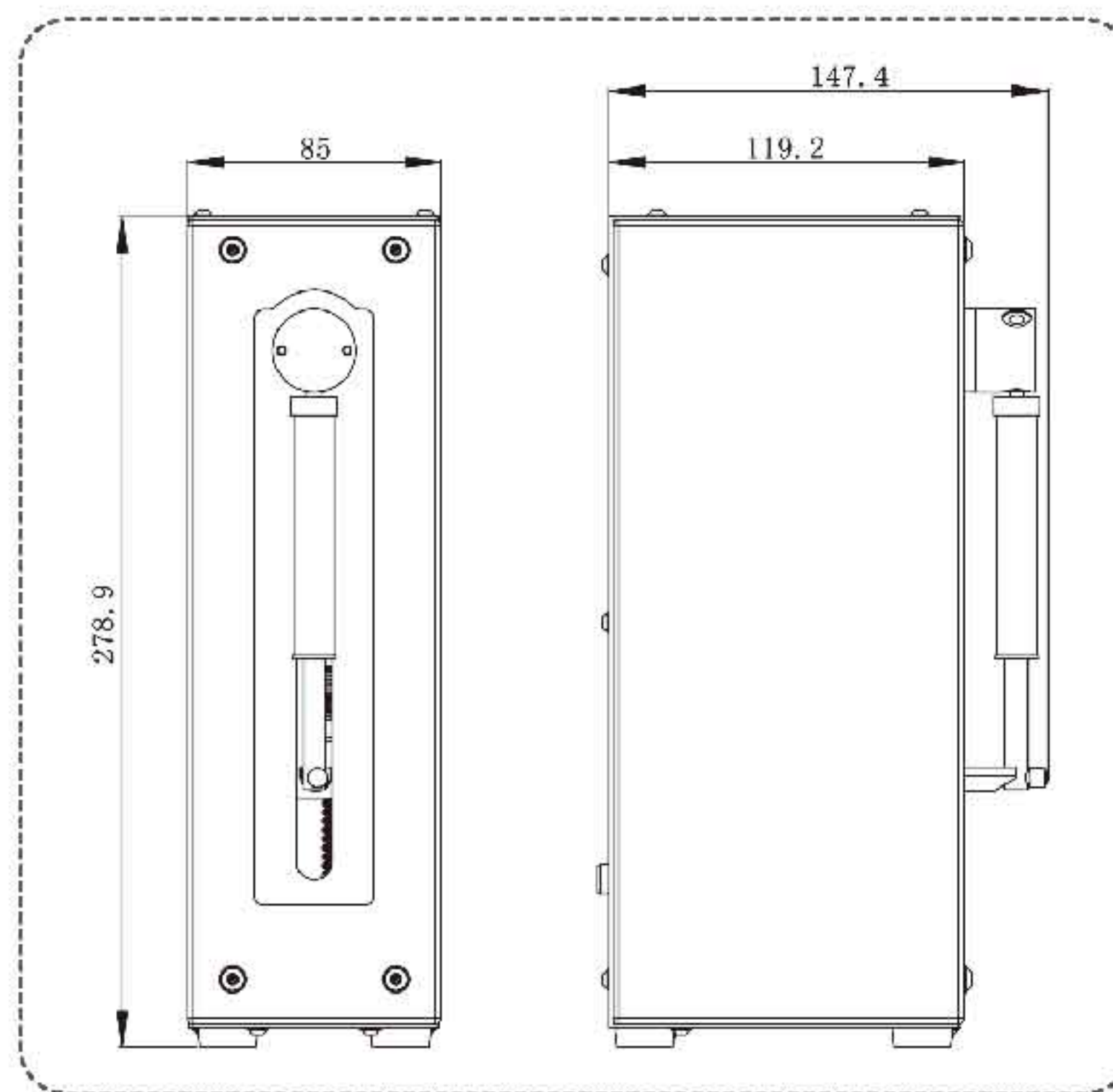
Model No.

ASD60

Introduction

ASD60 syringe pump is a programmable precision liquid handling device. Linear speed range: 0.01mm/s-60mm/s. Controlled by computer or microcontroller, replace the traditional operation of diluting and dispensing. Widely used in blood, chemistry, food and environment analysis.

Dimension Drawing (Unit: mm)



Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	60mm (6000 steps or 48000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.01mm/s-60mm/s	Addressing	UP to 15 individual addresses available(BCD switch)
Run time per stroke	1.25s-100min	Input	Two TTL level signal inputs, for restart the paused instruct
Speed resolution	0.01mm/s	Output	Three TTL level signal outputs, for synchronous external devices
Stroke resolution	0.01mm or 0.00125mm	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Valve switch time	≤ 250 ms between adjacent ports	Storage temperature	-20°C~65°C
Valves type	3 port valve, 4 port valve, 3 port distribution valve, 9 port distribution valve	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Valve material	Valve body: PCTFE; Valve element: PTFE	Weight	3.25kg
Tubing fittings	1/4-28UNF		
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL		
Power supply	DC24V $\pm 10\%$ /1.25A(Peak value)		
Dimension	147.4*85*278.9mm		

Industrial Syringe Pump

Programmable Syringe Pump



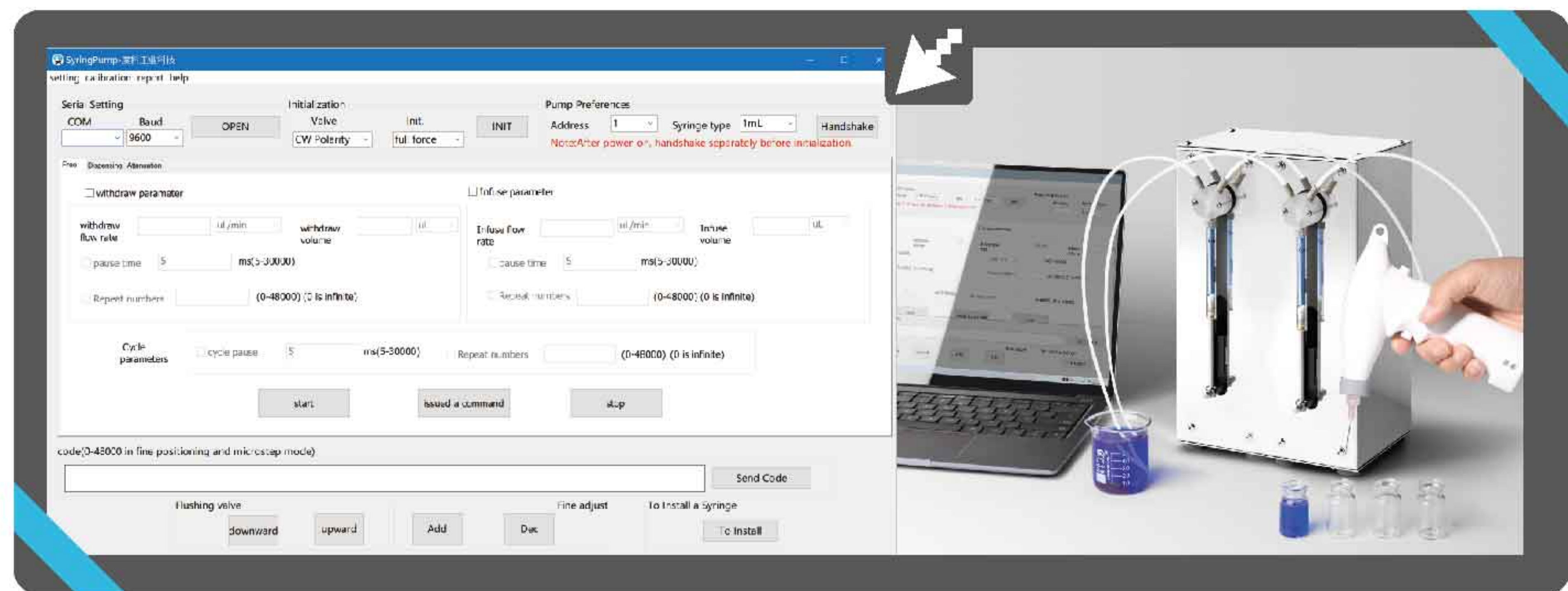
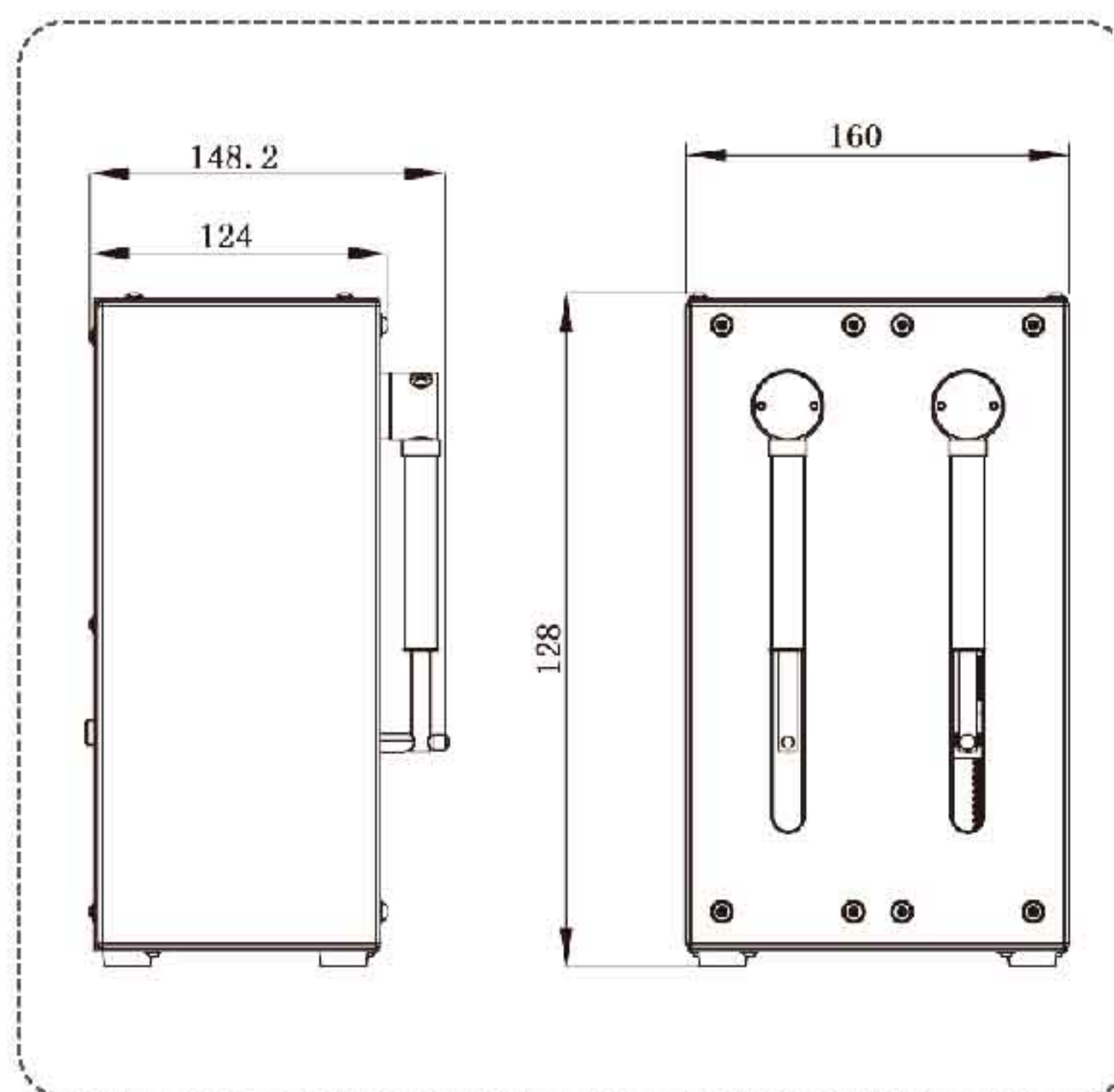
Model No.

ASD60-II

Introduction

ASD60-II syringe pump is a programmable precision liquid handling device. Two syringes can work independently or cooperatively to reach continuous flow. The pump come with computer control software.

Dimension Drawing (Unit: mm)



Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)		
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
Max. stroke(Steps)	60mm (6000 steps or 48000 steps)	Communication interface	RS232/RS485/CAN
Linear speed range	0.01mm/s-60mm/s	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Run time per stroke	1.25s-100min	Addressing	UP to 15 individual addresses available(BCD switch)
Speed resolution	0.01mm/s	Input	Two TTL level signal inputs, for restart the paused instruct
Stroke resolution	0.01mm or 0.00125mm	Output	Three TTL level signal outputs, for synchronous external devices
Valve switch time	≤ 250 ms between adjacent ports	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Valves type	3-port (Standard)	Storage temperature	-20°C~65°C
Valve material	Valve body: PCTFE; Valve element: PTFE	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Tubing fittings	1/4-28UNF	Weight	6.5kg
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL		
Power supply	DC24V $\pm 10\%$ /2.5A(Peak value)		
Dimension(mm)	148.2*160*281		

Industrial Syringe Pump

Programmable Syringe Pump



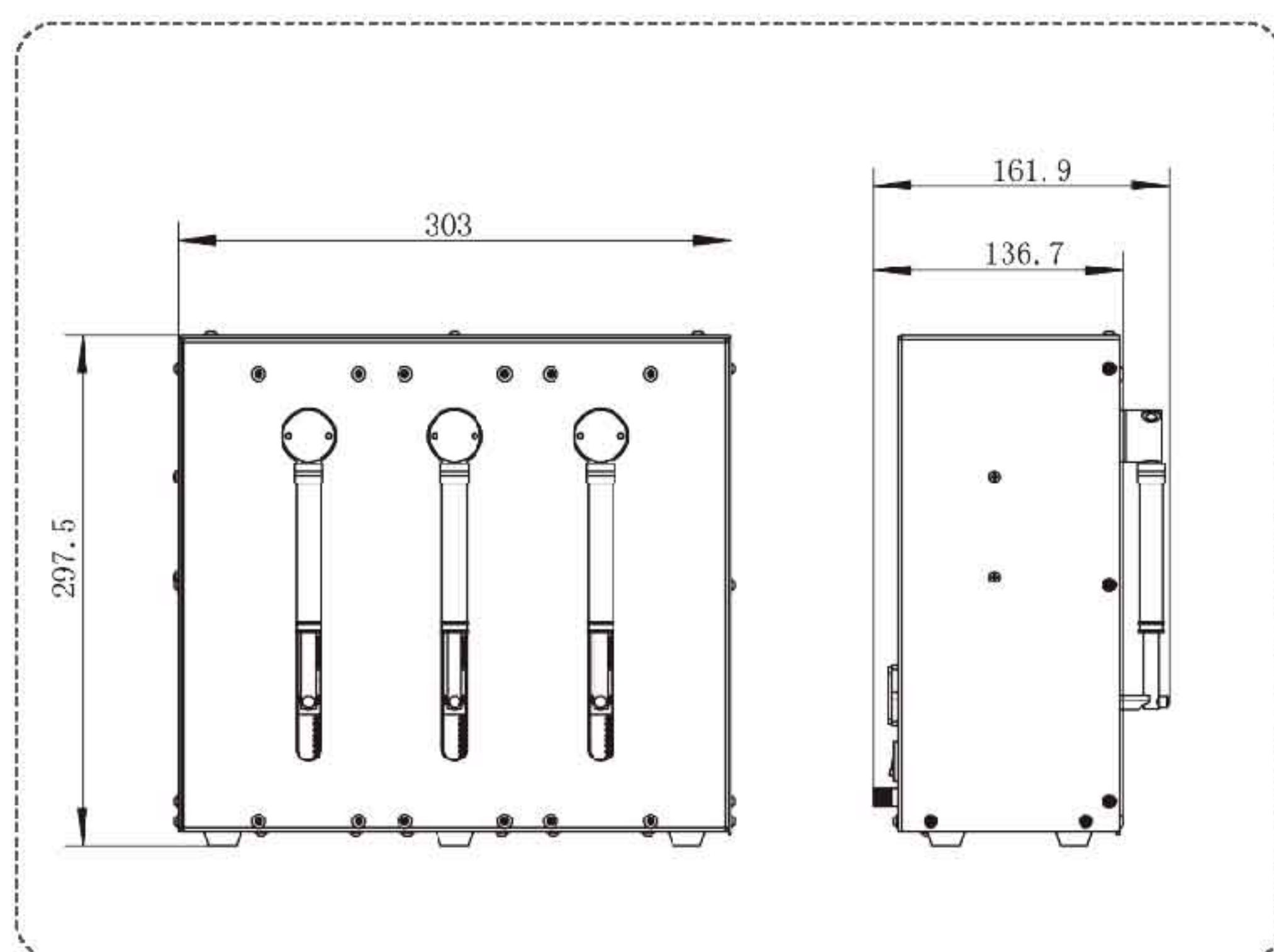
Model No.

ASD60-III

Introduction

ASD60-III syringe pump is a programmable precision liquid handling device. Linear speed range: 0.01mm/s-60mm/s. Controlled by computer or microcontroller, replace the traditional operation of diluting and dispensing. Widely used in blood, chemistry, food and environment analysis.

Dimension Drawing (Unit: mm)



Technical Specifications

Accuracy	Error $\leq \pm 0.1\%$ (stroke $\geq 30\%$ maximum stroke)	Syringe material	Barrel material: Borosilicate glass Plunger rod material: Stainless steel Plunger seal material: PTFE
Plunger drive	Stepper motor drives ball screw, quadrature encoder detects out-of-step and returns to zero	Communication interface	RS232/RS485/CAN
Max. stroke(Steps)	60mm (6000 steps or 48000 steps)	Baud rate	9600 or 38400(RS232/RS485); 100K, 125K, 250K, 500K, 1M(CAN)
Linear speed range	0.01mm/s-60mm/s	Addressing	UP to 15 individual addresses available(BCD switch)
Run time per stroke	1.25s-100min	Input	Two TTL level signal inputs, for restart the paused instruct
Speed resolution	0.01mm/s	Output	Three TTL level signal outputs, for synchronous external devices
Stroke resolution	0.01mm or 0.00125mm	Condition temperature	15°C~40°C(Low temperature operation requires a low temperature syringe)
Valve switch time	≤ 250 ms between adjacent ports	Storage temperature	-20°C~65°C
Valves type	3 port 120° valve, 4 port valve, 3 port distribution valve, 9 port distribution valve	Max. pressure	0.68MPa(High pressure above 0.68MPa, please contact us)
Valve material	Valve body: PCTFE; Valve element: PTFE	Weight	7.0kg
Tubing fittings	1/4-28UNF		
Syringe fittings	1/4-28UNF		
Syringes	50 μ L, 100 μ L, 250 μ L, 500 μ L, 1.0mL, 2.5mL, 5.0mL, 10mL, 25mL		
Power supply	DC24V $\pm 10\%$ /1.25A(Peak value)		
Dimension(mm)	303*161.9*297.5		

◀◀ Laboratory Syringe Pump

Intelligent Syringe Pump



Model No.

ISPLab01, ISPLab02, ISPLab04, ISPLab06, ISPLab08, ISPLab10, ISPLab12
ISPLab01-G1, ISPLab01-G2, ISPLab02-G1

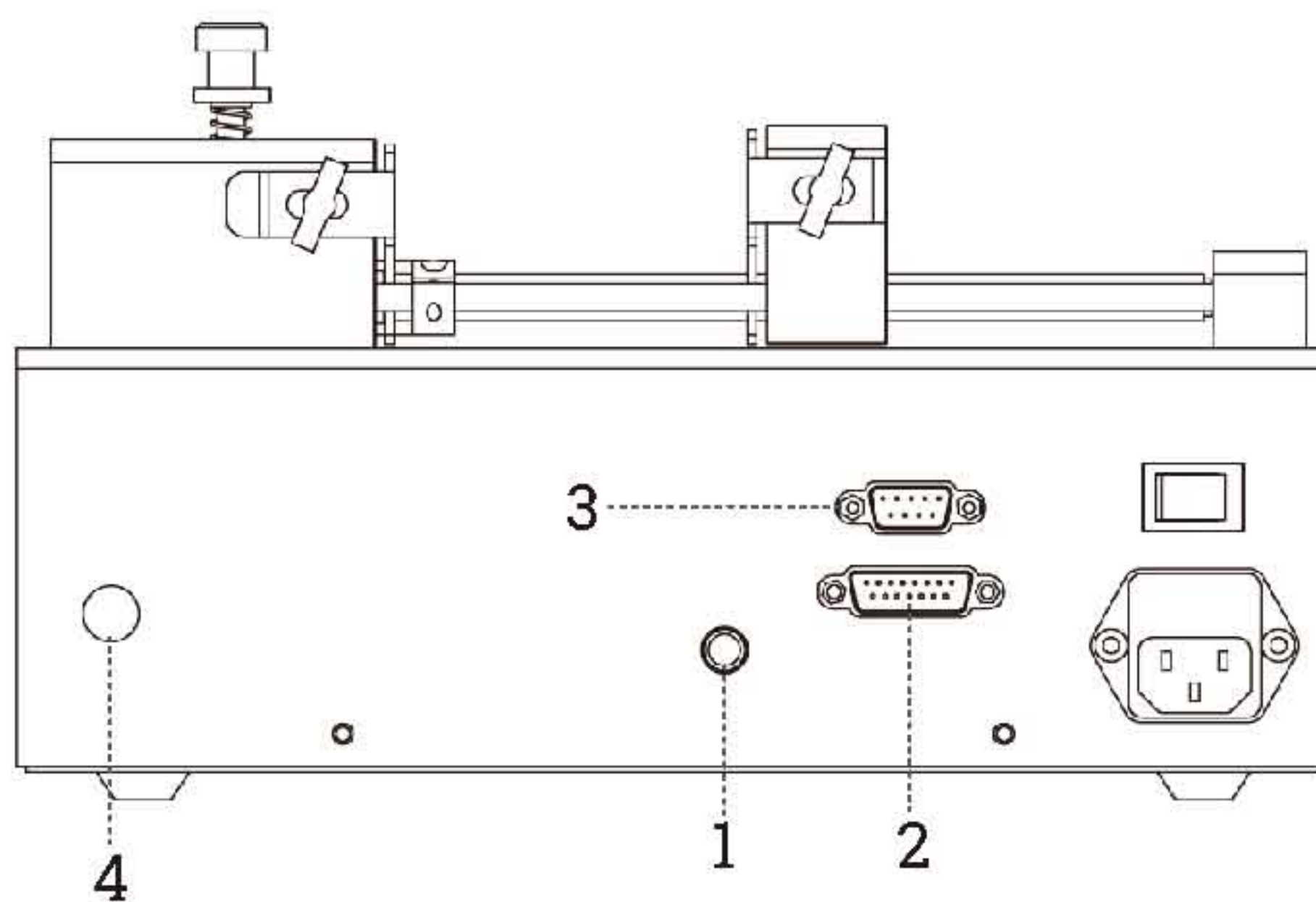
Introduction

The intelligent syringe pump with infusion/withdrawal mode, stainless steel body, and 4.3" color LCD screen is easy to operate. It can install and fix different types of injectors or syringes in the same time, and it is suitable for transferring micro flow rates with high precision (non-medical).

Features

- | **Online flow rate modification function:**
Can adjust the flow rate during the pump is running.
- | **Colorful LCD display:**
Friendly interface, 4.3 inch LCD display every technical parameter in real time.
- | **Input syringe inner diameter function:**
Can choose the injector from the list or input the injector inner diameter directly.
- | **Two measurement mode for selection:**
Infusion volume-Infusion flow rate, Infusion volume-Infusion time.
- | **4 different working modes:**
Infusion, withdrawal, infusion/withdrawal, withdrawal/infusion. The parameters of each working mode saving separately. Each working mode can be changed to continuous mode by setting repeat parameters.
- | **Alarm function:**
The pump will stall and give an alarm when the drive structure of the pump is blocked.

Syringe Pump External Control Schematic



- 1-Foot pedal connector: Connect with foot pedal switch
- 2-15 Pin connector: External input and output
- 3-9 pin connector: RS232 and RS485
- 4-Ground pole

Interface display

Real-time display flow rate Display area for setting parameter

Display area for dynamic working

Display area for running parameter

Function setting area touch to enter setting interface

◀◀◀ Laboratory Syringe Pump

Technical Specifications

Working mode	Infusion, withdrawal, infusion/withdrawal, withdrawal/infusion						
Channel number	1	2	4	6	8	10	12
Syringe size	0.5 μ L-150mL		10 μ L-10mL				
Syringe selection	ISPLab01-G1/ISPLab02-G1: 250 μ L-25mL; ISPLab01-G2: 50mL, 100mL(Glass syringe)						
	Syringe size and customized diameter						
Linear speed range	1 μ m/min-132mm/min(Flow rate=Linear speed* syringe inner cut area)						
Min. linear rate	1 μ m/min						
Linear force	8-20kgf, online adjust						
Max. stroke	140mm						
Stoke resolution	0.078 μ m/ μ step						
Accuracy	Error $\leq \pm 0.3\%$ (Stoke $\geq 30\%$ of maximum stroke)						
Back distance	0.01-10mm						
Stored modes	Can save maximum 60 common modes						
Display	Industrial grade 4.3"LCD color display						
Control method	Touch screen and Mechanical keypad						
Power-off memory	Display the previous data parameter after power supply again						
Output	OC gate signal output,used to indicate running status and direction						
External control	Start/stop signal, withdrawal and infusion signal, active switch signal: (5-24V)						
	Start/stop signal, passive switch signal, such as foot pedal switch						
Communication interface	RS232/RS485, Modbus protocol(RTU mode)						
Power supply	AC100-240V/65W						
Condition temperature	0~40 $^{\circ}$ C						
Relative humidity	<80%						
IP rate	IP31						
Dimension(mm)	282*215*165	282*242*157	280*209*175		280*235*175	282*280*175	282*325*175
Weight	4.44kg	4.62kg	4.56kg	4.78kg	4.96kg	5.18kg	5.38kg



◀◀◀ Laboratory Syringe Pump

Technical Specifications

Plastic syringe	Inside Diameter(mm)	Flow Rate($\mu\text{L}/\text{min}$ - mL/min)	
		ISPLab01/ISPLab02	ISPLab04-ISPLab12
1.0mL	4.70	0.0174-2.29	0.0174-2.29
2.0mL	9.12	0.0653-8.623	0.0653-8.623
5.0mL	12.48	0.1223-16.147	0.1223-16.147
10mL	15.89	0.1983-26.177	0.1983-26.177
20mL	20.00	0.3142-41.469	—————
30mL	22.50	0.3976-52.484	—————
50mL	28.90	0.6560-86.588	—————
100mL	32.00	0.8042-106.154	—————
150mL	40.00	1.2566-165.871	—————

Glass syringe	Inside Diameter(mm)	Flow Rate($\mu\text{L}/\text{min}$ - mL/min)	
		ISPLab01-G1/ISPLab01-G2/ISPLab02-G1	
250 μL	2.30	0.0042-0.5484	
500 μL	3.25	0.0083-1.095	
1mL	4.60	0.0167-2.2033	
2.5mL	7.28	0.0416-5.4944	
5mL	10.30	0.0833-10.9986	
10mL	14.57	0.1667-22.0081	
25mL	23.00	0.4166-54.9859	
50mL	32.57	0.8321-109.976	
100mL	32.57	0.8321-109.976	

Microsyringe	Inside Diameter(mm)	Flow Rate(nL/min - $\mu\text{L}/\text{min}$)	
		ISPLab01/ISPLab02	
0.5 μL	0.10	0.008-1.0296	
1 μL	0.15	0.018-2.3232	
2 μL	0.20	0.031-4.1448	
5 μL	0.35	0.096-12.6984	
10 μL	0.50	0.2-25.8	
25 μL	0.80	0.5-66.4	
50 μL	1.10	1-125.4	
100 μL	1.60	2-265.4	

◀◀◀ Laboratory Syringe Pump

Programmable Syringe Pump



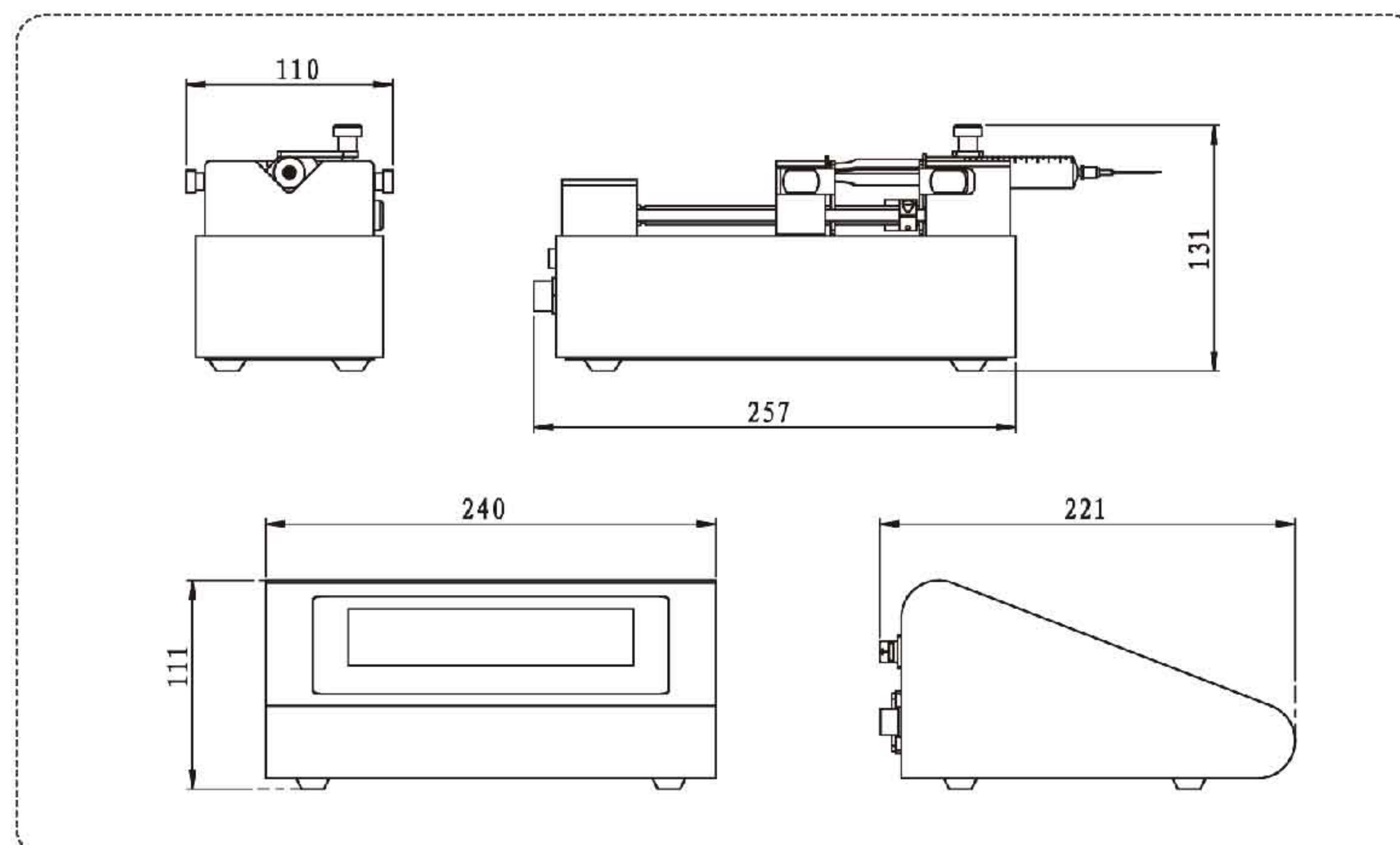
Model Number

SPC/ZU-I

Introduction

7 inch touch screen control, display 8 pump units working parameters and working state. Friendly interface, easy operation. Split type design, mainly for laboratory.

Dimension Drawing (Unit: mm)



Features

- | **Online flow rate modification function:**
Can adjust the flow rate during the pump is running.
- | Two working mode: Independent working mode, each unit working independently, can infuse or withdraw with different speed in same time or different time. Logic working mode, each unit working with time relationship, with different proportion infuse or withdraw. Users can choose each unit to be independent or logic working mode.
- | Intelligent calibration, ensure infuse volume accuracy. Online micro adjusting function, convenient to adjust the volume of one units, decrease volume error.
- | Real time monitor, animate display monitor result. Controller can receive traffic alarm of each unit.
- | Back distance setting, can exclude bubbles inside syringe, improve volume accuracy.
- | Fast forward and backward function used for loading syringe, washing and unlock traffic protection.

◀◀◀ Laboratory Syringe Pump

Interface Display



Technical Specifications

Working mode(Five)	Infusion,withdrawal,infusion/ withdrawal,withdrawal/infusion	Display	Industrial grade 7"LCD color display
		Control method	Touch screen
Pump unit	1-8 for option	Power-off memory	Display the previous data parameter after power supply again
Syringe size	ZU-I: 0.5μL-50mL		
	ZU-I-G1: 250μL-25mL		
	ZU-I-G2: 50mL-100mL		
Syringe selection	Syringe size and customized diameter	External control signal	Start/stop signal, active switch signal (5-24V universal) All start/stop signal, passive switch signal, such as foot pedal switch
Linear speed range	1μm/min-132mm/min (Flow rate=Linear speed* syringe inner cut area)	Communication interface	RS232/RS485, Modbus protocol (RTU mode)
Min. linear rate	1μm/min		
Linear force	≥16Kgf	Controller power supply	DC5V/10W
Max. stroke	90mm	Pump unit power supply	DC24V/30W
Stoke resolution	0.078μm/μStep	Condition temperature	0~40°C
Accuracy	Error≤ ±0.5% (Stroke≥30% of maximum stroke)	Relative humidity	<80%
		IP rate	IP31
Back distance	0.01-5mm	Controller dimension	240×221×111 (mm)
Working mode	Independent running mode and Logic running mode	Controller weight	2.0kg
		Pump unit dimension	257×110×131 (mm)
Stored modes	5 group data of each running mode	Pump unit weight	3.0kg

◀◀◀ Laboratory Syringe Pump

Programmable Syringe Pump



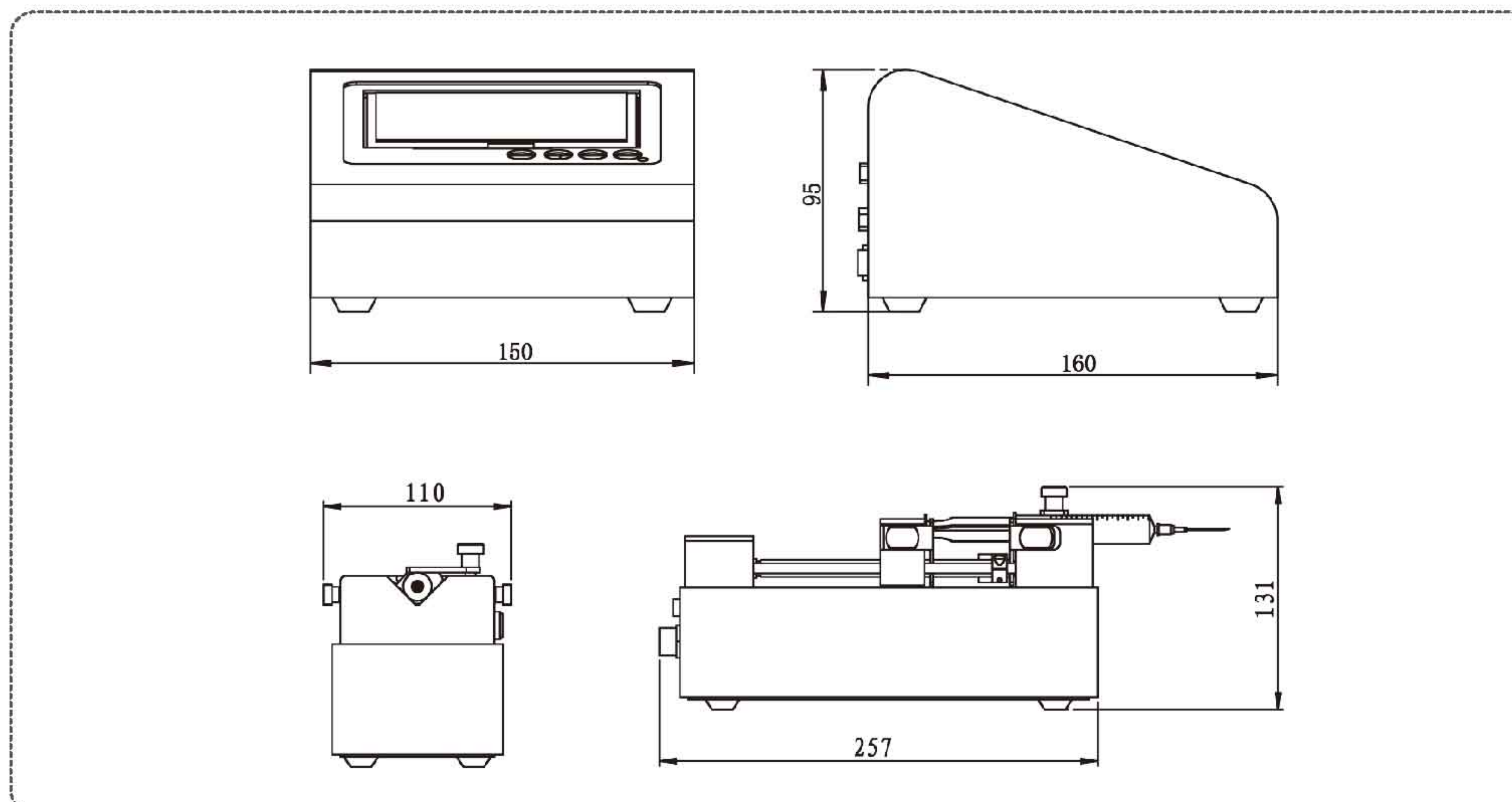
Model No.

SPM/ZU-I

Introduction

4.3 inch touch screen control, compact design. Display 8 pump units working parameters and working state in same screen. Friendly interface, easy operation. Split design, mainly for laboratory.

Dimension Drawing (Unit: mm)

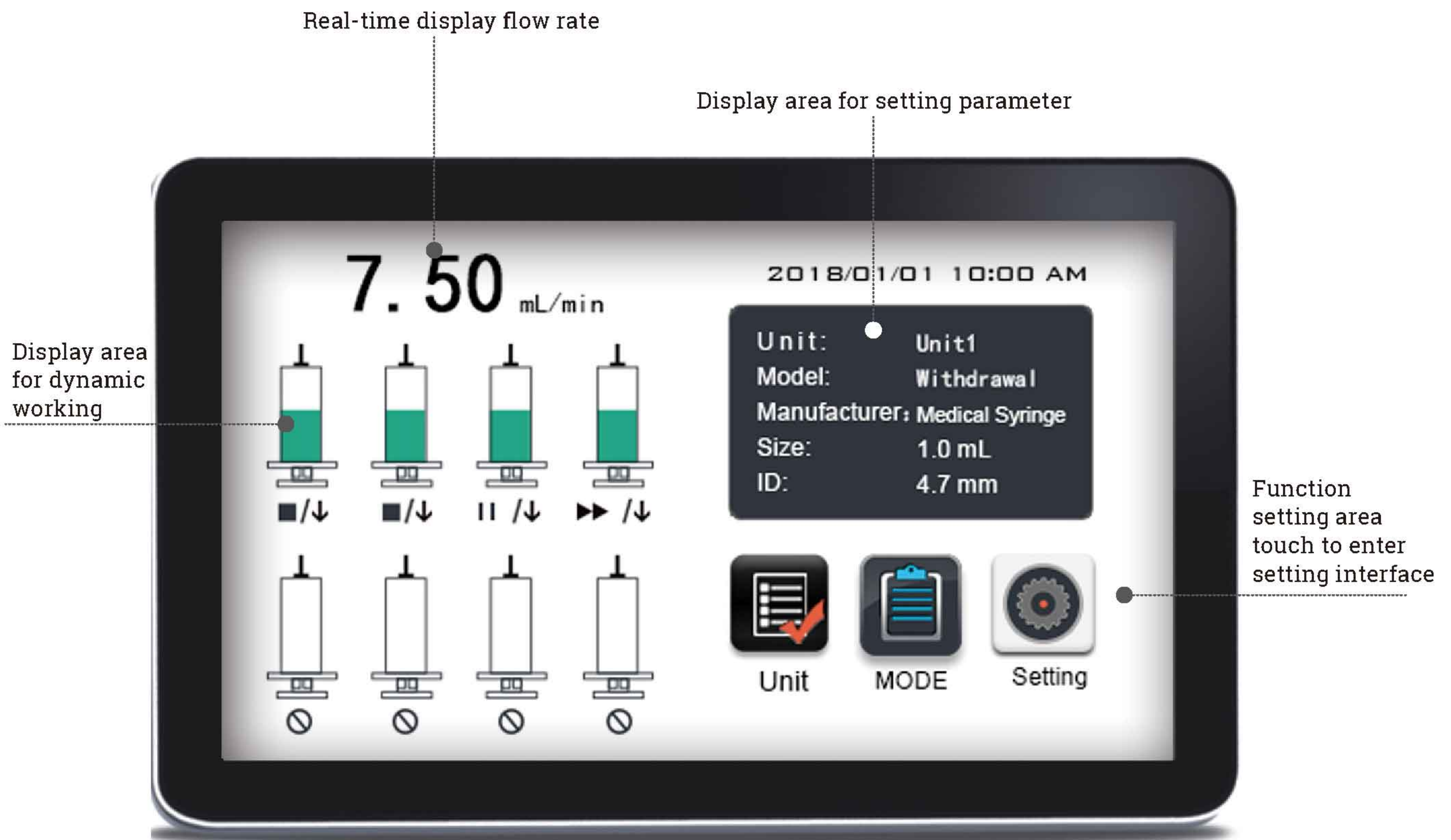


Features

- | **Online flow rate modification function:**
- | **Can adjust the flow rate during the pump is running.**
- | Each unit working independently, can set one or some units freely.
- | Each unit can infuse or withdraw different volume in same time or different time.
- | Intelligent calibration, ensure infuse volume accuracy. Online micro adjusting function, convenient to adjust the volume of one units, decrease volume error.
- | Real time monitor, animate display monitor result. Controller can receive traffic alarm of each unit.
- | Back distance setting, can exclude bubbles inside syringe, improve volume accuracy.
- | Fast forward and backward function used for loading syringe, washing and unlock traffic protection.

◀◀◀ Laboratory Syringe Pump

Interface Display



Technical Specifications

Working mode(Five)	Infusion, withdrawal, infusion/ withdrawal, withdrawal/infusion	Display	Industrial grade 4.3"LCD color display
		Control method	Touch screen and Mechanical keypad
Pump unit	1-8 optional	Power-off memory	Display the previous data parameter after power on again
Syringe size	ZU-I: 0.5μL-50mL	External control signal	Start/stop signal, active switch signal: (5-24V)
	ZU-I-G1: 250μL-25mL		
	ZU-I-G2: 50mL-100mL		
Syringe selection	Syringe size and customized diameter	Communication interface	RS232/RS485 (Modbus protocol, RTU mode)
Linear speed range	1μm/min-132mm/min(Flow rate=Linear speed* syringe inner cut area)	Controller power supply	DC5V/10W
Min. linear rate	1μm/min	Pump unit power supply	DC24V/30W
Linear force	≥16Kgf	Condition temperature	0~40°C
Max.stroke	90mm	Relative humidity	<80%
Stoke resolution	0.078μm/μStep	IP rate	IP31
Accuracy	Stroke≥30% maximum stroke, Error≤ ±0.5%	Controller dimension	160×150×95 (mm)
		Controller weight	1.0kg
Back distance	0.01-5mm	Pump unit dimension	257×110×131 (mm)
Working mode	Independent working mode	Pump unit weight	3.0kg
Stored modes	Can save 10 group working modes		

◀◀◀ Laboratory Syringe Pump

Basic Syringe Pump

Model No.

SPLab01, SPLab02, SPLab04, SPLab06, SPLab08, SPLab10, SPLab12, SPLab01-G1, SPLab01-G2, SPLab02-G1

Introduction

The syringe pump with infusion/withdrawal mode. **Online flow rate modification function: Can adjust the flow rate during the pump is running.** Stainless steel body, and large-screen chromatic LCD is easy to operate. It can install and fix different types of injectors or syringes in the same time, and it is suitable for transferring micro flow rates with high precision (non-medical).

SPLab Series



Technical Specifications

Working mode(Six)	Infusion, withdrawal, infusion/withdrawal, withdrawal/infusion, continuous, additional mode (infusion/withdrawal, then exclude bubble)						
Channel number	1	2	4	6	8	10	12
Syringe size	10μL-150mL			10μL-10mL			
	SPLab01-G1/SPLab02-G1: 250μL-25mL; SPLab01-G2: 50mL, 100mL(Glass syringe)						
Syringe selection	Syringe size and customized diameter						
Linear speed range	5μm/min-132mm/min(Flow rate=Linear speed* syringe inner cut area)						
Min. linear rate	5μm/min						
Linear force	≥16kgf						
Max. stroke	140mm						
Stoke resolution	0.078μm/μstep						
Accuracy	Error≤ ±0.5%, Stroke≥30% of maximum stroke						
Display mode	320×240TFT-LCD						
Control method	Rotary encoded switch and imported membrane keypad						
Power-off memory	Display the previous data parameter after power supply again						
External control	Active switch signal: 5V						
Communication interface	RS485, Modbus protocol(RTU mode)						
Power supply	AC 220V±10%(standard), AC 110V±10%(option)						
Condition temperature	0~40°C						
Relative humidity	<80%						
IP rate	IP31						
Dimension(mm)	282*213*150	282*241*157	282*241*157		282*241*157	282*241*157	282*241*157
Weight	5.26kg	5.40kg	5.40kg	5.66kg	5.78kg	5.96kg	6.16kg

◀◀◀ Laboratory Syringe Pump

Technical Specifications

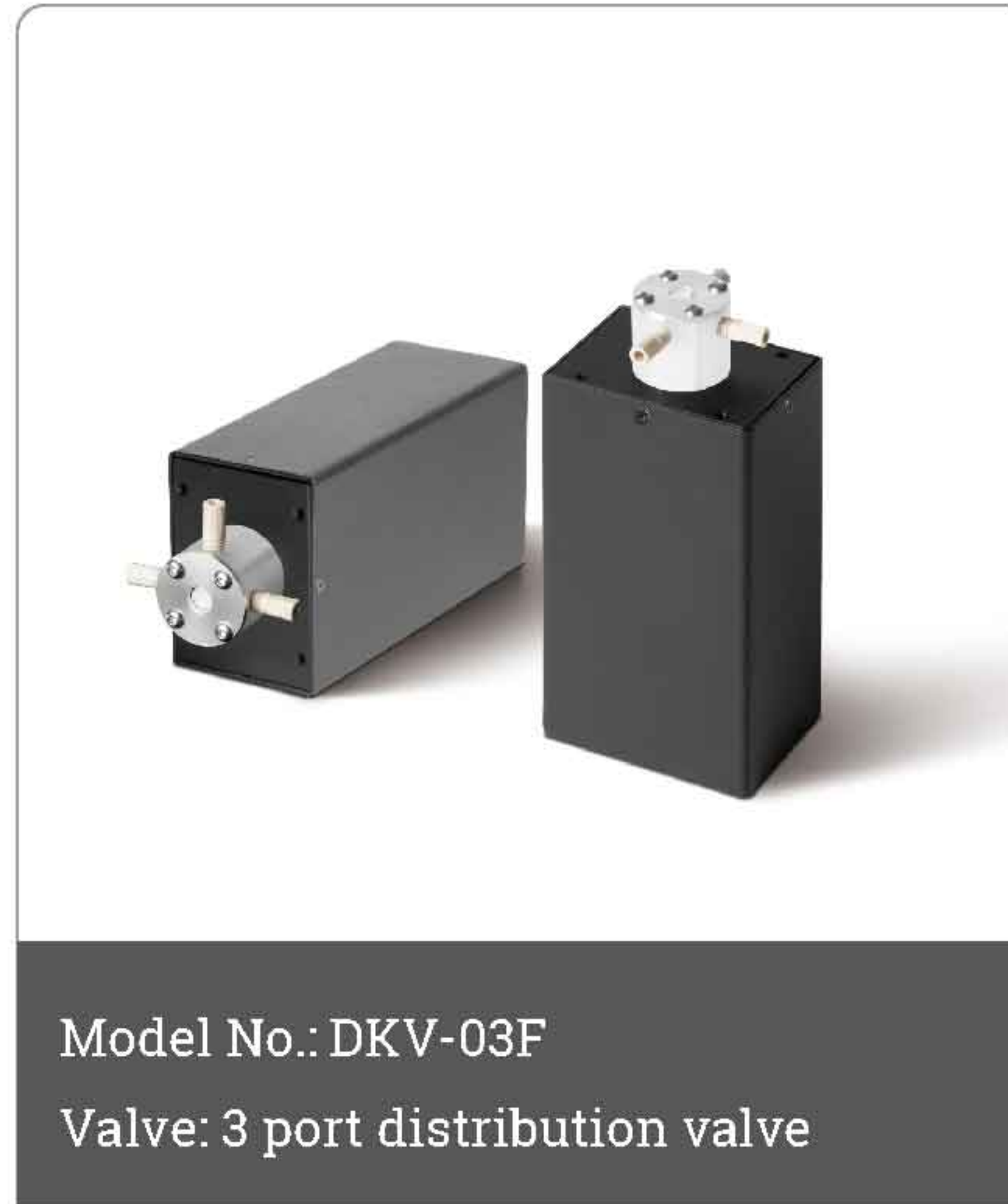
Plastic syringe	Inside Diameter(mm)	Flow Rate($\mu\text{L}/\text{min}$ - mL/min)	
		SPLab01/SPLab02	SPLab04-SPLab12
1.0mL	4.70	0.087-2.29	0.087-2.29
2.0mL	9.12	0.326-8.623	0.326-8.623
5.0mL	12.48	0.612-16.147	0.612-16.147
10mL	15.89	0.992-26.177	0.992-26.177
20mL	20.00	1.571-41.469	————
30mL	22.50	1.988-52.484	————
50mL	28.90	3.280-86.588	————
100mL	32.00	4.021-106.154	————
150mL	40.00	6.283-165.871	————

Glass syringe	Inside Diameter(mm)	Flow Rate($\mu\text{L}/\text{min}$ - mL/min)
		SPLab01-G1/SPLab01-G2/SPLab02-G1
250 μL	2.30	0.021-0.548
500 μL	3.25	0.041-1.095
1mL	4.60	0.083-2.193
2.5mL	7.28	0.208-5.494
5mL	10.30	0.416-10.99
10mL	14.57	0.833-22.00
25mL	23.00	2.077-54.84
50mL	32.57	4.165-109.9
100mL	32.57	4.165-109.9

Microsyringe	Inside Diameter(mm)	Flow Rate($\mu\text{L}/\text{min}$ - $\mu\text{L}/\text{min}$)
		SPLab01/SPLab02
10 μL	0.50	1-25.91
25 μL	0.80	2.5-66.34
50 μL	1.10	4.75-125.4
100 μL	1.60	10-256.3

Rotary Switching Valve

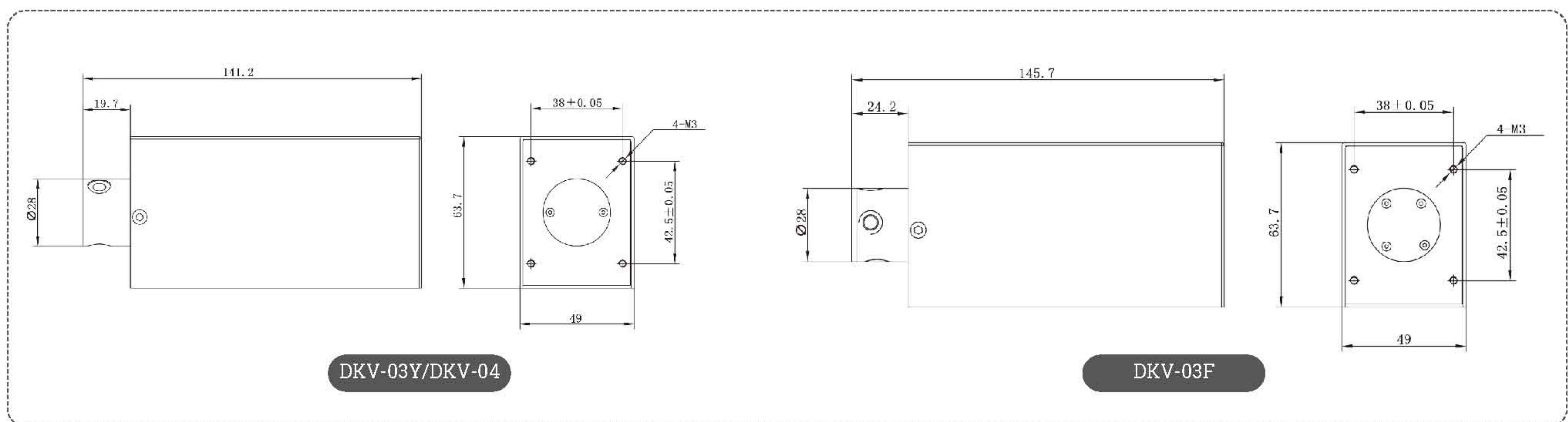
Rotary Switching Valve



Introduction

The rotatory switching valve is a programmable liquid path unit, support 3 port valve, 4 port valve and 3 port distribution valve. It is controlled by external controller to realize connection between valve body and the ports, controller can check the location of the port at any time.

Dimension Drawing (Unit: mm)



Technical Specifications

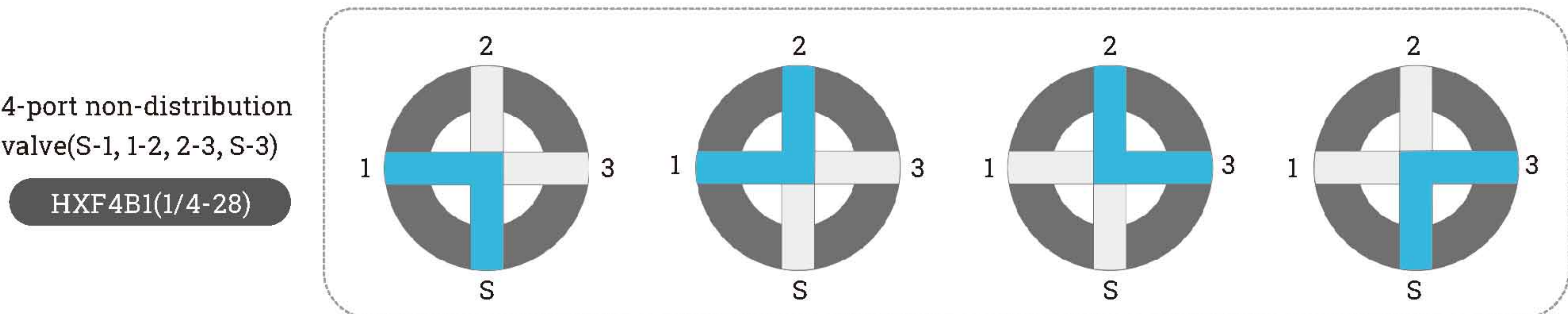
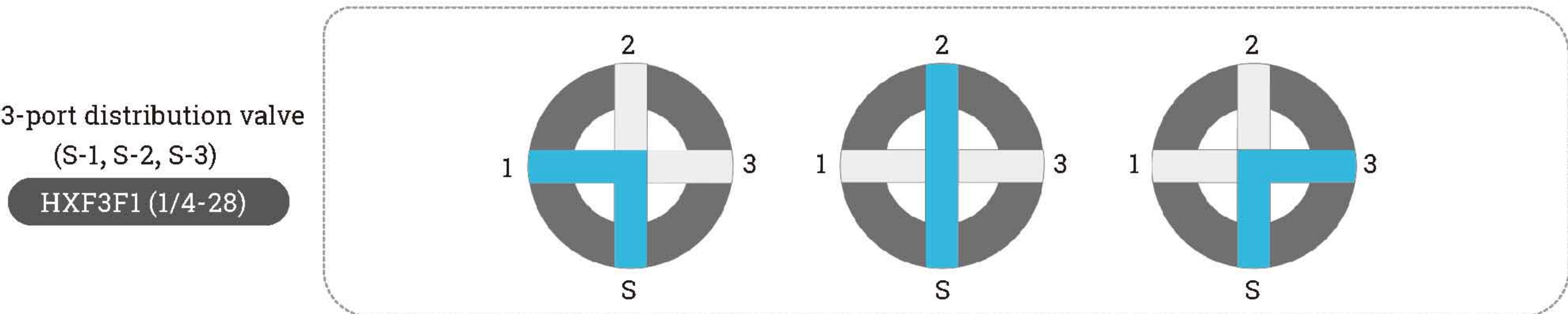
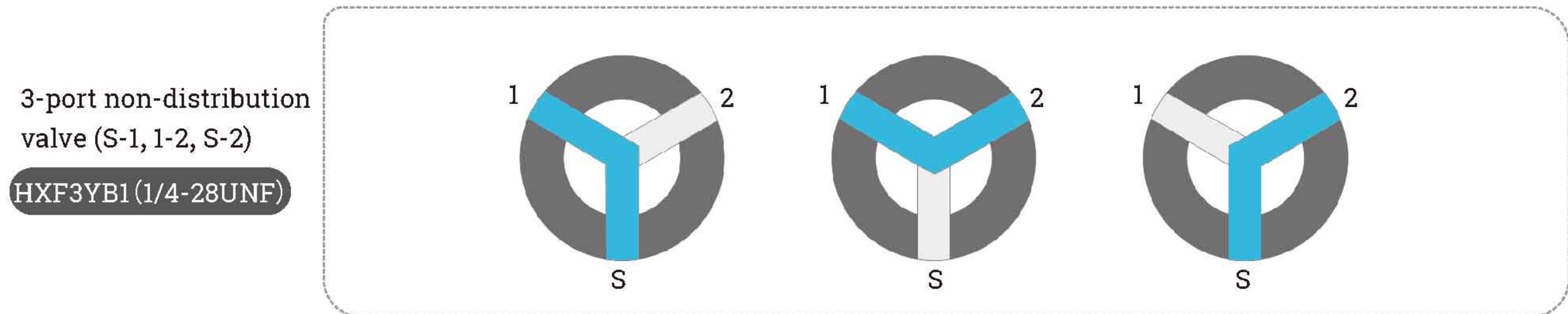
Valve type	3 port non-distribution valve, 4 port non-distribution valve, 3 port distribution valve	Port switching time	≤250ms (Between two adjacent ports)
		Communication	RS485 (standard), RS232/CAN (for option)
Path diameter	1.4mm	Address setting	BCD dip switch set up the address, can set maximum 15 addresses
Valve material	Valve body: PCTFE; Valve element: PTFE	Baud rate (bps)	9600 or 38400 (RS485/RS232) 100K, 125K, 250K, 500K, 1M (CAN)
Maximum pressure	0.68MPa(High pressure above 0.68MPa, please contact us)	Power supply	DC24V/1.25A
Condition temperature	15°C~40°C	Drive Dimension(mm)	121.5 x 49 x 63.7
Connection	1/4-28UNF	Weight	625g

Valve



Technical Specifications

Connection	1/4-28 UNF	Material	PTFE, PCTFE
Path diameter	1.4mm	Working temperature	15°C~40°C
Maximum pressure	0.68MPa(High pressure above 0.68MPa, please contact us)	Storage temperature	-20°C~65°C
Media compatibility	Compatible with most reagents (PTFE, PCTFE compatible media)	Compatible Industrial Syringe Pump Model No.	SP60-1A, SP30-1A, ASD60, ASD60- II, ASD60-III



Accessories







Technical Specifications





Syringe size	1ml, 2.5ml, 5ml, 10ml, 25ml	Liquid temperature	0°C~40°C
Stroke	60mm	Lifetime	2,000,000 times
Plunger rod, barrel material	Zirconia	Max. pressure	0.68MPa
Liquid path material	Zirconia, PTFE	Suitable	SP60-1A, SP60-nB, ASD60 Series, CFSP- I ,CFSP- II

Name	Picture	Model No.	Material	Suitable Product
60mm Syringe		50µl	Barrel material: Borosilicate glass; Plunger rod material: Stainless steel; Plunger seal material: PTFE	SP60-1A, SP60-nB, ASD60 Series, CFSP- I , CFSP- II
		100µl		
		250µl		
		500µl		
		1.0ml		
		2.5ml		
		5.0ml		SP60-1A, SP60-1B, ASD60 Series, CFSP- I ,CFSP- II
		10ml		
		25ml		
30mm Syringe		50µl	Barrel material: Borosilicate glass; Plunger rod material: Stainless steel; Plunger seal material: PTFE	SP30-1A
		100µl		
		250µl		
		500µl		
		1.0ml		
		2.5ml		
		5.0ml		

Accessories

Name	Picture	Model No.	Material	Suitable Product
Microsyringe		0.5µl	Barrel material: Borosilicate glass; Plunger rod material: Stainless steel; Plunger seal material: PTFE	SPLab series, ISPLab series, ZU-I(SPC, SPM)
		1µl		
		2µl		
		5µl		
		10µl		
		25µl		
		50µl		
		100µl		
Gastight glass syringe with Luer-lock		250µl	Barrel material: Borosilicate glass; Plunger rod material: Stainless steel; Plunger seal material: PTFE	SPLab-G1, ISPLab-G1, ZU-I-G1(SPC, SPM)
		500µl		
		1ml		
		2.5ml		
		5ml		
		10ml		
		25ml		SPLab-G2, ISPLab-G2, ZU-I-G2(SPC, SPM)
		50ml		
		100ml		
Gastight glass syringe with Internal thread		250µl	Barrel material: Borosilicate glass; Plunger rod material: Stainless steel; Plunger seal material: PTFE	SPLab-G1, ISPLab-G1, ZU-I-G1(SPC, SPC)
		500µl		
		1ml		
		2.5ml		
		5ml		
		10ml		
		25ml		SPLab-G2, ISPLab-G2, ZU-I-G2(SPC, SPM)
		50ml		
		100ml		
Plastic syringe		1ml, 2ml, 5ml, 10ml, 20ml, 30ml, 50ml	Barrel material: PP; Seal plug: Rubber	SPLab series, ISPLab series, ZU-I(SPC, SPM)
		100ml		SPLab series, ISPLab series
		150ml		

Accessories

Name	Picture	Model No.	Material	
Inverted Cone		CC-16ET	Use together with connector, ETFE material	
		CC-20ET		
		CC-25ET		
		CC-30ET		
		CC-32ET		
Connector		CC-1601-GY-PP	Used for rotary valve, 1/4-28 thread, PP material	
		CC-3201-GY-PP		
PTFE Tubing		Model No.(ID*ODmm)	Material	
		0.3*1.6	PTFE	
		0.5*1.6		
		0.8*1.6		
		1.0*2.0		
		1.5*2.5		
		1.6*3.2		
		2.0*3.0		
Model No.	Picture	ID(mm)		OD(mm)
14G		1.55	2.1	Luer connector: PP; Needle: Stainless steel
15G		1.36	1.8	
16G		1.2	1.58	
18G		0.84	1.26	
19G		0.65	0.98	
20G		0.62	0.9	
21G		0.51	0.82	
22G		0.41	0.73	
23G		0.33	0.63	
24G		0.26	0.55	
25G		0.25	0.51	
27G		0.21	0.4	
30G		0.16	0.3	
32G		0.11	0.23	
34G		0.08	0.2	

Industrial Syringe Pump Chemical Compatibility

Appendix-Chemical Resistance Chart

This information provided in the below table is to be used only as a guideline. Before permanent installation, test the equipment with the chemicals under the specific conditions of your application.

Ratings of chemical behavior listed in this chart apply to a 48 hours exposure period; we do not have knowledge of possible effects beyond this period.

Warning:

Failure to test chemicals used in individual applications with pump may result in damage to the pump and/or test results.

Danger:

Variations in chemical behavior during handling due to factors such as temperature, pressure and concentration can cause equipment to fail, even though it passed an initial test. Serious injury may result. Use suitable guards and personal protection when handling chemicals.

The table below lists the 4 plastic materials used in industrial syringe pumps:

Rotary valve	
Valve element	PTFE
Valve body	PCTFE
Rotary valve(surface seal)	
Rotor	UHMWPE
Stator	PPS

Ratings - Chemical Effect

A = Excellent

B = Good, minor effect, slight corrosion or discoloration.

C = Fair, moderate effect, not recommended for continuous use. Softening, loss of strength or swelling may occur.

D = Severe effect, not recommended for any use.

N/A = Information not available.

Notes

1. Satisfactory to 22°C (72°F)
2. Satisfactory to 48°C (120°F)

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Acetaldehyde	A	A	A	D
Acetamide	A	A	A	N/A
Acetate Solvent	A1	A	A	A1
Acetic Acid	A	A	A	B1
Acetic Acid 20%	A	A	A	A2
Acetic Acid 80%	A	A	A	A2
Acetic Acid, Glacial	A2	A	A	A1
Acetic Anhydride	A	A	A	A1
Acetone	A	A	A	A2
Acetyl Chloride (dry)	A	A	A	N/A
Acetylene	A	A	A	N/A
Acrylonitrile	N/A	A	N/A	N/A
Adipic Acid	N/A	A	N/A	N/A
Alcohols:Amyl	A	A	A	A
Alcohols:Benzyl	A	A	A	A
Alcohols:Butyl	N/A	A	A	A
Alcohols:Diacetone	B1	A	N/A	N/A
Alcohols:Ethyl	A	A	N/A	A
Alcohols:Hexyl	N/A	A	N/A	N/A
Alcohols:Isobutyl	N/A	A2	N/A	N/A
Alcohols:Isopropyl	N/A	A2	N/A	A
Alcohols:Methyl	A1t	A	A	A1
Alcohols:Octyl	N/A	N/A	N/A	N/A
Alcohols:Propyl	N/A	A	A	A
Aluminum Chloride	A	A	A	A2
Aluminum Chloride 20%	A	A	A	A2
Aluminum Fluoride	N/A	A	A	A2
Aluminum Hydroxide	A1	A	N/A	A2
Aluminum Nitrate	A1	A	N/A	N/A
Aluminum Potassium Sulfate 100%	A	A	N/A	A2
Aluminum Sulfate	A	A	A	A2
Amines (General)	A	A2	B	A2
Ammonia, anhydrous	A	A	A1	A2
Ammonia, Aqueous	A	A	N/A	N/A
Ammonia Nitrate	N/A	A	A	N/A
Ammonium Acetate	N/A	A	N/A	N/A
Ammonium Bifluoride	N/A	A	N/A	N/A
Ammonium Carbonate	N/A	A	A	C1
Ammonium Chloride	A	A	A	A2
Ammonium Hydroxide	A	A	A	A2
Ammonium Nitrate	A	A	A	A2
Ammonium Oxalate	N/A	N/A	N/A	N/A
Ammonium Persulfate	A	A	N/A	A2
Ammonium Phosphate, Dibasic	A	A2	A	A1
Ammonium Phosphate, Monobasic	N/A	A	N/A	A1
Ammonium Phosphate, Tribasic	N/A	A	N/A	A1
Ammonium Sulfate	A	A	A	A2
Ammonium Thiosulfate	N/A	N/A	N/A	N/A
Amyl Acetate	A1	A	A	A1
Amyl Alcohol	A	A	A	A2
Amyl Chloride	A	A	N/A	D
Aniline	A2	A	A	A1
Aniline Hydrochloride	N/A	A	N/A	N/A
Antifreeze	N/A	A	N/A	A2

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Antimony Trichloride	A	A	N/A	D
Aqua Regia (80% HCl, 20% HNO3)	A	A	D	B1
Arochlor 1248	A1	A	N/A	N/A
Aromatic Hydrocarbons	N/A	N/A	N/A	B1
Arsenic Acid	N/A	A	A	A1
Arsenic Salts	N/A	N/A	N/A	N/A
Asphalt	A	A1	A	A1
Barium Carbonate	A	A	A2	N/A
Barium Chloride	A	A	A	A1
Barium Cyanide	N/A	A1	N/A	N/A
Barium Hydroxide	A	A	A	A2
Barium Nitrate	A	A	N/A	N/A
Barium Sulfate	A	A	A	A1
Barium Sulfide	N/A	A	N/A	A2
Benzaldehyde	A	A1	A	A1
Benzene	B	A	A	B1
Benzene Sulfonic Acid	N/A	A	A	A2
Benzoic Acid	A	A2	A1	A2
Benzol	A	A	N/A	N/A
Benzonitrile	A2	A2	N/A	N/A
Benzyl Chloride	N/A	N/A	N/A	N/A
Bleach Solutions	A	A	N/A	N/A
Borax (Sodium Borate)	A	A	A	A2
Boric Acid	A	A	A	A2
Bromine Water	A	A	D	D
Butadiene	A	A2	A1	D
Butane	A	A	A	A1
Butanol (Butyl Alcohol)	A1	A2	A	A
Butyl Amine	D	A2	D	N/A
Butyl Ether	A1	A1	A2	N/A
Butyl Phthalate	A1	A2	A	A2
Butylacetate	A1	A	A	A1
Butylene	B1	A	A	A1
Butyric Acid	A	A	A	A2
Calcium Bisulfate	N/A	N/A	N/A	N/A
Calcium Bisulfide	A	A	N/A	N/A
Calcium Bisulfite	A	A	A	A1
Calcium Carbonate	N/A	A	N/A	N/A
Calcium Chloride	A	A	A	A
Calcium Hydroxide	A	A	A	A
Calcium Hypochlorite	B1	A	A	A
Calcium Nitrate	A1	A2	A	N/A
Calcium Oxide	N/A	A	A	N/A
Calcium Sulfate	A	A	A	A
Carbon Bisulfide	N/A	N/A	N/A	D
Carbon Tetrachloride	A1	A	A	C1
Carbon Tetrachloride (dry)	D	A	N/A	N/A
Carbon Tetrachloride(wet)	A1	A	N/A	N/A
Carbonated Water	N/A	A	N/A	N/A
Carbonic Acid	A	A	A	A1
Chloric Acid	A	A	N/A	N/A
Chlorine Water	A	A	D	A
Chlorine,Anhydrous Liquid	B2	A	D	B1
Chloroacetic Acid	A2	A	A	D

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Chlorobenzene (Mono)	A1	B	A	C1
Chlorobromomethane	N/A	A	N/A	N/A
Chloroform	A1	A1	A	B1
Chlorosulfonic Acid	A2	A	D	D
Chromic Acid 10%	A	A	A	D
Chromic Acid 30%	A	A	B	A
Chromic Acid 5%	A	A	A	A
Chromic Acid 50%	A2	A	A1	A
Citric Acid	A2	A	A	A
Citric Oils	N/A	N/A	N/A	N/A
Clorox® (Bleach)	A	A	D	A
Copper Chloride	A	A	A	A1
Copper Cyanide	N/A	A	A	A1
Copper Nitrate	A	A	A	A1
Copper Sulfate >5%	A	A	A	A
Copper Sulfate 5%	A	A	A	A
Cresols	A1	A	A	N/A
Cresylic Acid	N/A	A	N/A	B1
Cupric Acid	A2	A	A	N/A
Cyanic Acid	N/A	A	N/A	N/A
Cyclohexane	A	A	A	A2
Cyclohexanone	A1	A	A	A1
Detergents	A	A	A	A
Diacetone Alcohol	B1	A	N/A	N/A
Dichlorobenzene	N/A	A	N/A	N/A
Dichloroethane	A2	A1	N/A	C1
Diesel Fuel	A1	A	A	A1
Diethyl Ether	C- Fair	A	A	C1
Diethylamine	A1	A	N/A	N/A
Diethylene Glycol	N/A	A	N/A	N/A
Dimethyl Aniline	A	A	A	N/A
Dimethyl Formamide	A2	A	A	A1
Diphenyl	B1	A	N/A	N/A
Diphenyl Oxide	N/A	A	A	N/A
Epsom Salts (Magnesium Sulfate)	A	A	A	N/A
Ethane	A1	A	N/A	A1
Ethanol	A	A	N/A	A
Ethanolamine	D	A1	A	N/A
Ether	B1	A	A	B1
Ethyl Acetate	A1	A	A	A2
Ethyl Benzoate	A1	A	N/A	N/A
Ethyl Ether	A1	A	A	C1
Ethyl Sulfate	A	A	N/A	N/A
Ethylene Bromide	B	A	N/A	N/A
Ethylene Chloride	A1	A	A	C1
Ethylene Chlorohydrin	A	A	N/A	N/A
Ethylene Diamine	D	A	A	A1
Ethylene Dichloride	A1	A	A	C1
Ethylene Glycol	A	A	A	A
Ethylene Oxide	A2	A	D	A1
Fatty Acids	A	A	N/A	A
Ferric Chloride	A2	A	A	A
Ferric Nitrate	A1	A	A	A1
Ferric Sulfate	A1	A	A	A1

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Ferrous Chloride	B1	A	A	A1
Ferrous Sulfate	N/A	A	A	A1
Fluoboric Acid	B1	A	A	A
Fluorine Liquid	N/A	N/A	D	C1
Fluorosilicic Acid	A1	A	N/A	N/A
Formaldehyde 100%	N/A	A	B	A
Formaldehyde 40%	A	A	A	A
Formic Acid	A	A	A	A
Freon 113	A1	A	A	A1
Freon 12	A1	A	A	A1
Freon 22	A1	A	A	N/A
Freon® 11	A1	A	A	N/A
Fuel Oils	A	A	A	A1
Furan Resin	A1	A	A	N/A
Furfural	D	A	A	A1
Gallic Acid	A1	A	A	A
Gasoline(high-aromatic)	A1	A	A	N/A
Glucose	N/A	A	B	A1
Glycerin	A	A	A	A
Glycolic Acid	A1	A	A	N/A
Heptane	A	A	A	A2
Hexane	A	A	A	A1
Hydraulic Oil (Petro)	N/A	A	D	B1
Hydrazine	N/A	A	N/A	N/A
Hydrobromic Acid 100%	A	A	A1	A
Hydrobromic Acid 20%	A	A	N/A	A
Hydrochloric Acid 100%	A	A	D	A
Hydrochloric Acid 20%	A	A	D	A
Hydrochloric Acid 37%	A	A	D	A
Hydrofluoric Acid 100%	B	A	D	A2
Hydrofluoric Acid 20%	A	A	A	A2
Hydrofluosilicic Acid 100%	B	A	A1	B1
Hydrofluosilicic Acid 20%	A	A	A	A1
Hydrogen Peroxide 10%	A	A	A	A
Hydrogen Peroxide 100%	B	A	C	A1
Hydrogen Peroxide 30%	B	A	A1	A
Hydrogen Peroxide 50%	A	A	N/A	B2
Hydrogen Sulfide(Aqueous)	A1	A	A	A1
HydroxyaceticAcid 70%	A1	A	N/A	N/A
Iodine	A1	A	D	A1
Iodine (in alcohol)	NA	A	N/A	A1
Isooctane	A1	A	A	A1
Isopropyl Acetate	NA	A	NA	N/A
Isopropyl Ether	A1	A	NA	A1
Kerosene	A	A	A	A1
Ketones	A1	A	A	D
Lacquer Thinners	A2	A	N/A	A1
Lacquers	A1	A	N/A	N/A
Lactic Acid	A	A	A	A
Lead Acetate	A	A	N/A	N/A
Lead Nitrate	N/A	A	N/A	N/A
Lead Sulfamate	N/A	B	N/A	N/A
Ligroin	N/A	A	N/A	N/A
Linoleic Acid	N/A	A	N/A	N/A

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Lithium Chloride	N/A	A	N/A	D
Lithium Hydroxide	N/A	A	N/A	D
Lye: Ca(OH) ₂ Calcium Hydroxide	A2	A	A	A
Magnesium Bisulfate	N/A	A	N/A	N/A
Magnesium Carbonate	N/A	A	N/A	N/A
Magnesium Chloride	A	A	A1	A2
Magnesium Hydroxide	A1	A	A	A
Magnesium Nitrate	N/A	A	A	A1
Magnesium Oxide	N/A	A	N/A	N/A
Magnesium Sulfate (Epsom Salts)	A	A	A	A1
Maleic Acid	N/A	A	B	A
Maleic Anhydride	N/A	A	N/A	N/A
Malic Acid	N/A	A	N/A	N/A
Manganese Sulfate	A1	A	A2	N/A
Mercury	A1	A	N/A	A
Methanol (Methyl Alcohol)	A2	A	A	A1
Methyl Acetate	A1	A	N/A	A1
Methyl Acetone	N/A	A	N/A	N/A
Methyl Acrylate	A1	A	N/A	N/A
Methyl Bromide	A1	A	N/A	N/A
Methyl Butyl Ketone	N/A	A	N/A	N/A
Methyl Cellosolve	N/A	A	N/A	N/A
Methyl Chloride	A1	A	B	B1
Methyl Dichloride	N/A	A	N/A	N/A
Methyl Ethyl Ketone	A1	A	A	D
Methyl Isobutyl Ketone	A	A	A	D
Methyl Isopropyl Ketone	N/A	A	N/A	N/A
Methyl Methacrylate	N/A	A	N/A	N/A
Methylamine	A1	A	N/A	N/A
Methylene Chloride	A1	A	A	D
Mineral Spirits	A1	A	A	N/A
Monochloroacetic acid	A2	A	N/A	D
Monoethanolamine	D	A	A	N/A
Morpholine	A1	A	C	N/A
Motor oil	A	A	A	A1
Naphthalene	A	A	A	A1
Nickel Chloride	A2	A	A	A2
Nickel Nitrate	A2	A	N/A	A1
Nickel Sulfate	A	A	A	A1
Nitric Acid (20%)	A1	A	C	A
Nitric Acid (50%)	A1	A	C	A2
Nitric Acid (5-10%)	A1	A	B1	A
Nitric Acid (concentrated)	A1	A	C	D
Nitrobenzene	A	A	A2	A1
Nitrous Acid	B	A	N/A	N/A
Oil Crude, Sour	A	A	N/A	N/A
Oil Crude, Sweet	A	A	N/A	N/A
Oil Mineral	A	A	A	A
Oleic Acid	A1	A	A	A2
Oleum 100%	A1	A	A1	D
Oxalic Acid (cold)	A	A	A	A
Ozone	A1	A	N/A	B1
Palmitic Acid	N/A	A	N/A	N/A
Perchloroethylene	A1	A	A	B1

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Petrolatum	N/A	A	N/A	A1
Petroleum	A	A	N/A	A2
Phenol (10%)	A	A	A	B1
Phosphoric Acid (>40%)	A	A	A	A
Phosphoric Acid (40%)	A	A	A	A
Phosphoric Acid (crude)	A2	A	A	A
Phosphoric Acid Anhydride	N/A	A	D	N/A
Phosphorus	N/A	A	N/A	N/A
Phosphorus Trichloride	A	A	A	A
Photographic Developer	A	A	N/A	A
Photographic Solutions	A	A	A2	A
Phthalic Acid	N/A	A	N/A	A
Phthalic Anhydride	A	A	N/A	N/A
Picric Acid	A1	A	A	N/A
Potash (Potassium Carbonate)	A1	A	N/A	A1
Potassium Bicarbonate	A2	A	A	A1
Potassium Bromide	A1	A	A	A1
Potassium Chlorate	A2	A	A	A
Potassium Chloride	A2	A	A	A1
Potassium Chromate	N/A	A	N/A	A1
Potassium Cyanide Solutions	A1	A	A	A1
Potassium Ferricyanide	A1	A	N/A	A1
Potassium Ferrocyanide	A1	A	N/A	A1
Potassium Hydroxide (Caustic Potash)	A1	A	A	A
Potassium Hypochlorite	A1	A	A	B1
Potassium Iodide	N/A	A	A2	B1
Potassium Nitrate	A1	A	A	A1
Potassium Oxalate	N/A	A	N/A	A1
Potassium Permanganate	A1	A	A	A
Potassium Sulfate	A1	A	A	A1
Potassium Sulfide	A1	A	A	A1
Propane (liquefied)	A1	A	N/A	N/A
Pyridine	A1	A	A	A1
Pyrogalllic Acid	A1	A	N/A	N/A
Resorcinol	A1	A	N/A	N/A
Salicylic Acid	A1	A2	N/A	N/A
Salt Brine (NaCl saturated)	A	A2	A	A
Sea Water	A	A	A	A
Silver Bromide	A	A2	N/A	N/A
Silver Nitrate	A1	A	A	A
Soap Solutions	N/A	A	A	A
Sodium Acetate	A1	A	A	A
Sodium Aluminate	N/A	A	A	N/A
Sodium Benzoate	N/A	A	N/A	A1
Sodium Bicarbonate	A	A	A	A1
Sodium Bisulfate	A2	A	A	A1
Sodium Bisulfite	A1	A	A	A1
Sodium Borate (Borax)	A	A	A	A
Sodium Bromide	A1	A	N/A	N/A
Sodium Carbonate	A	A	A	A
Sodium Chlorate	A1	A	A	A
Sodium Chloride	A1	A	A	A
Sodium Chromate	A1	A	A	N/A
Sodium Cyanide	A1	A	A	A1
Sodium Ferrocyanide	N/A	A	N/A	N/A
Sodium Fluoride	A1	A1	N/A	N/A
Sodium Hydrosulfite	N/A	A	N/A	N/A

Industrial Syringe Pump Chemical Compatibility

Solvent	PCTFE	PTFE	PPS	UHMWPE
Sodium Hydroxide (20%)	A	A	A	A
Sodium Hydroxide(50%)	A	A	A	A
Sodium Hydroxide (80%)	A	A	A	A
Sodium Hypochlorite (<20%)	A	A	A	A1
Sodium Hypochlorite (100%)	A	A	A	A1
Sodium Hyposulfite	A	A	N/A	A
Sodium Metaphosphate	N/A	A	N/A	A1
Sodium Metasilicate	N/A	A	N/A	A
Sodium Nitrate	A1	A	A	A1
Sodium Perborate	A1	A	N/A	A1
Sodium Peroxide	A1	A	N/A	A
Sodium Polyphosphate	N/A	A	N/A	N/A
Sodium Silicate	A1	A	A	A1
Sodium Sulfate	A	A	A	A1
Sodium Sulfide	A1	A	A	A1
Sodium Sulfite	N/A	N/A	N/A	A1
Sodium Tetraborate	A	A	N/A	A
Sodium Thiosulfate (hypo)	A	A	A	A
Stannic Chloride	A	A	A	N/A
Stannous Chloride	A1	A	A1	N/A
Starch	A1	A	N/A	N/A
Stearic Acid	N/A	A	N/A	A1
Styrene	N/A	A	N/A	N/A
Sulfur Chloride	A1	A	N/A	N/A
Sulfur Dioxide	N/A	A	A	A
Sulfur Trioxide	A1	A	N/A	N/A
Sulfuric Acid (10-75%)	A	A	A	A1
Sulfuric Acid (75-100%)	A	A	A1	A1
Sulfurous Acid	A1	A	A	B1
Sulfuryl Chloride	N/A	A	N/A	N/A
Tartaric Acid	A2	A	A	A1
Tetrachloroethane	A1	A	N/A	N/A
Tetrachloroethylene	A1	A	N/A	B1
Tetrahydrofuran	A1	A	A	D
Toluene (Toluol)	B2	A	A	A1
Trichloroacetic Acid	A1	A	A	N/A
Trichloroethane	A1	A	N/A	C1
Trichloroethylene	B2	A	A1	D
Trichloropropane	A1	A1	N/A	N/A
Tricresylphosphate	N/A	A	N/A	A1
Triethylamine	A1	A	N/A	N/A
Trisodium Phosphate	N/A	A	A	A
Turpentine	A	A	A	A1
Urea	N/A	A	A	A
Uric Acid	N/A	A	N/A	N/A
Urine	N/A	A	N/A	N/A
Varnish	A	A	N/A	N/A
Vinyl Acetate	N/A	A2	N/A	N/A
Vinyl Chloride	N/A	A2	N/A	C1
Water, Deionized	A1	A2	A	A
Water, Distilled	A	A	A	A
Water, Fresh	A	A	A	A
Water, Salt	A	A	A	A
Xylene	A	A	A	C1
Zinc Chloride	A1	A	A	A
Zinc Hydrosulfite	N/A	A1	A	N/A
Zinc Sulfate	A	A	A	A1



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