

## Intelligent syringe pump



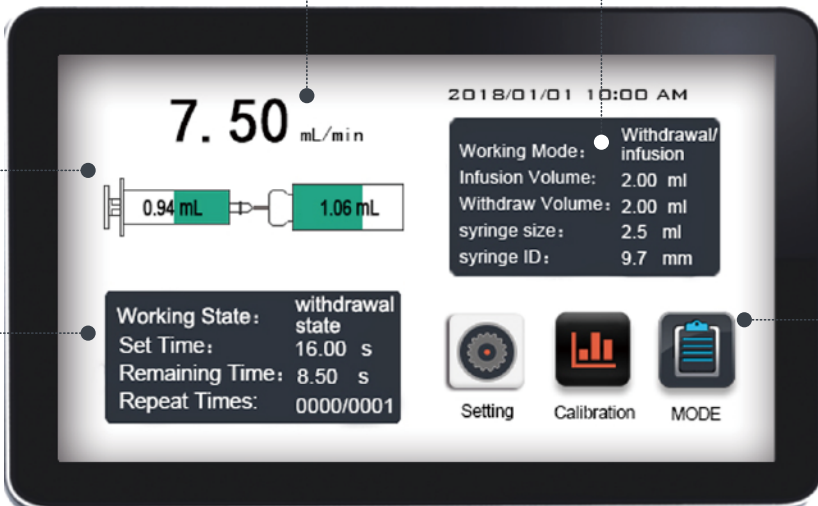
### Introduction

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, and it is suitable for transferring micro flow rates with high precision (non-medical).

### Features

1. Online flow rate modification function: The pump is running, without stopping, adjust the flow rate at any time to meet complex application.
2. Colorful LCD display: Friendly interface, 4.3 inch LCD display every technical parameter in real time.
3. Input syringe inner diameter function: Can choose the injector from the list or input the injector inner diameter directly.
4. Two measurement mode for selection: Infusion volume --- Infusion flow rate, Infusion volume --- Infusion time.
5. 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.
6. Alarm function: The pump will stall and give an alarm when the drive structure of the pump is blocked.

### Interface Display



The screenshot shows the following interface elements:

- Real-time display flow rate:** 7.50 mL/min
- Display area for setting parameter:** 2018/01/01 10:00 AM
- Display area for dynamic working:** Working Mode:  Withdrawal/infusion
- Display area for running parameter:**
  - Infusion Volume: 2.00 ml
  - Withdraw Volume: 2.00 ml
  - syringe size: 2.5 ml
  - syringe ID: 9.7 mm
  - Working State: withdrawal state
  - Set Time: 16.00 s
  - Remaining Time: 8.50 s
  - Repeat Times: 0000/0001
- Function setting area changeable by touching:** Setting, Calibration, MODE

Additional visual information from the screenshot includes a syringe diagram showing 0.94 mL and 1.06 mL volumes, and three icons at the bottom: a gear for 'Setting', a bar chart for 'Calibration', and a clipboard for 'MODE'.

## Technical Specifications

Working mode	Infusion, withdrawal, infusion/withdrawal, withdrawal/infusion
Channel number	2
Syringe size	0.5μL-150mL
Syringe selection	Syringe size and customized diameter
Linear speed range	1μm/min-132mm/min(Flow rate=Linear speed* syringe inner cut area)
Min. linear rate	1μm/min
Linear force	8-20kgf, online adjust
Max. stroke	140mm
Stoke resolution	0.078μm/μstep
Accuracy	Error ≤±0.3% (Stoke ≥30% of maximum stroke)
Back distance	0.01-10mm
Stored modes	Can save at most 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	AC90-240V/65W
Condition temperature	0-40°C
Relative humidity	<80%
IP rate	IP31
Dimension(mm)	282*242*157
Weight	4.62kg

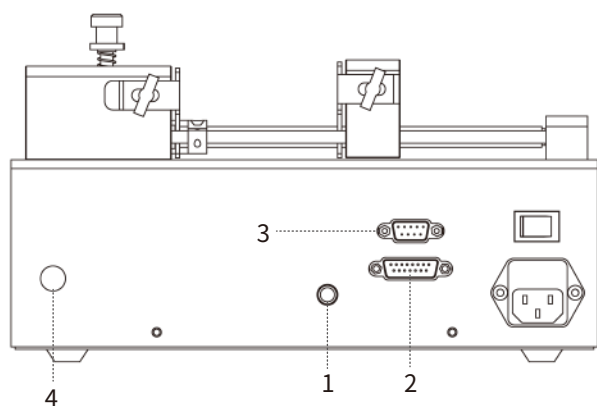
## Technical Specifications

Plastic syringe	Inside Diameter(mm)	Flow Rate( $\mu\text{L}/\text{min}$ - $\text{mL}/\text{min}$ )	
		ISPLab01/ISPLab02	ISPLab04/ISPLab12
1mL	4.70	0.0174-2.29	0.0174-2.29
2.0mL	9.12	0.0653-8.623	0.0653-8.623
5mL	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( $\mu\text{L}/\text{min}$ - $\text{mL}/\text{min}$ )	
		ISPLab01-G1/ISPLab01-G2/ISPLab02-G1	
250 $\mu\text{L}$	2.30	0.0042-0.5484	
500 $\mu\text{L}$	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( $\text{nL}/\text{min}$ - $\mu\text{L}/\text{min}$ )	
		ISPLab01/ISPLab02	
0.5 $\mu\text{L}$	0.10	0.008-1.0296	
1 $\mu\text{L}$	0.15	0.018-2.3232	
2 $\mu\text{L}$	0.20	0.031-4.1448	
5 $\mu\text{L}$	0.35	0.096-12.6984	
10 $\mu\text{L}$	0.50	0.2-25.8	
25 $\mu\text{L}$	0.80	0.5-66.4	
50 $\mu\text{L}$	1.10	1-125.4	
100 $\mu\text{L}$	1.60	2-265.4	

## Syringe Pump External Control Schematic



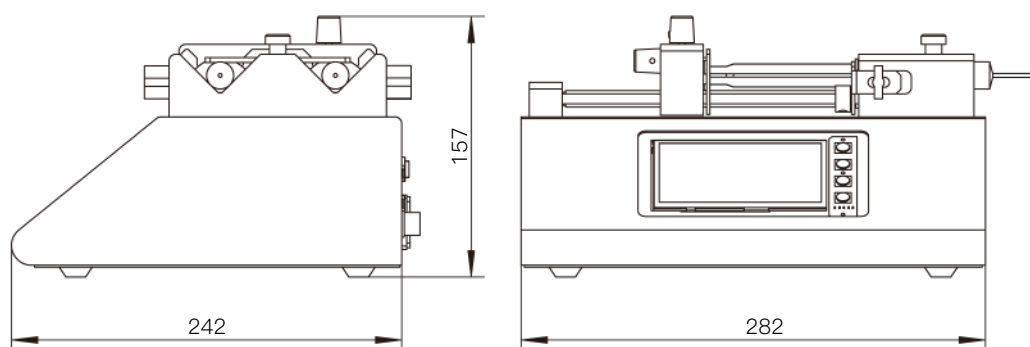
1-Foot pedal connector: Connect with foot pedal switch

2-15 Pin connector: External input and output

3-9 pin connector: RS232 and RS485

4-Ground pole

## Dimension Drawing (Unit:mm)



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