

Censtant Flow Syringe Pump

CFCU-I



Product Overview

Focusing on micro-liter-level continuous fluid transfer, this system utilizes a dual-actuator precision-coordinated design. Combined with a proprietary compensation and calibration algorithm, it delivers a continuously smooth and constant flow rate. While maintaining the high-precision advantages of micro-syringe pumps, its core feature focuses on low-pulsation, highly stable constant flow, making it perfectly suited for a wide range of low-flow precision fluid delivery applications.

Functions and Features

1. Microliter-Scale Precision Fluid Control: Enables continuous, uninterrupted liquid transmission.
2. Multiple Operation Modes: Supports Continuous Transfer, Volumetric Metering, and Timed Metering to adapt to diverse application scenarios.
3. Equipped with RS232, RS485, and switching value interfaces, supporting host computer (PC) control.
4. Proprietary Metering Algorithm with Onboard Storage: Real-time logging of switching valve and syringe cycle counts simplifies maintenance and operations.
5. Independently Controllable Actuators: Supports autonomous networking for easy equipment integration and system matching.
6. Intelligent Calibration & Dynamic Compensation Algorithms: Combined with a linear correction model to ensure long-term, high-precision operation.
7. Full Closed-Loop Feedback Control: Integrated with hardware overload protection and software alerts to effectively safeguard equipment and consumables.
8. Ultra-Quiet Mechanical Structure: Paired with custom stepper motors and optimized via vibration simulation to ensure exceptionally quiet operation with low resonance.
9. Made of stainless steel with a powder-coated finish for excellent corrosion and aging resistance, suitable for both laboratory and industrial environments.

Technical Specifications

Flow range	0.07 μ L/min-70mL/min
Dispensing volume range	0.1 μ L-25mL
Stroke control accuracy	Error \leq \pm 0.1% (when stroke \geq 30% of maximum stroke)
External control signal	Passive switching signal: Supports Start/Pause functions (e.g., for connecting a footswitch). Active switching signal: Supports Start/Pause, Stop, Prime/Wash, and Reset functions (5-24V).
Output interface	Fluid output status indicator (Open-collector output).
Communication interface	RS232 and RS485 interfaces; supports Modbus protocol (RTU mode).
Maximum pressure of liquid path	0.68 MPa (Optional upgrades available for pressures exceeding 0.68 MPa).
Type of reversing valve	Ceramic Valve: 3-way ceramic valve PTFE Valve: 3-way valve PEEK Valve: 3-way valve.
Tubing interface	1/4-28UNF
Syringe specification	50 μ L、100 μ L、250 μ L、500 μ L、1.0mL、2.5 mL、5.0 mL、10 mL、25 mL
Syringe material	Syringe Barrel Material: Borosilicate glass Plunger Rod Material: Stainless steel Plunger Seal Material: PTFE
Power adapter	Includes standard 24V power adapter.
Power	\leq 60W
Working ambient temperature	15 $^{\circ}$ C-40 $^{\circ}$ C (Low-temperature syringes required for low-temperature operation).
Relative humidity of working ambient	<80% (no condensation)

Applicable Syringes

Syringe size	Minimum flow	Maximum flow
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

Dimension (Unit : mm)

