



## Mini SY-04 Syringe Pump

- Runze patented product, compact size, can transfer liquid as microliters with extraordinary accuracy and precision
- Equipped with Japan imported NMB step motor, KSS ball screw, OMRON optocouplers, high stability and maintenance-free
- Imported fluorine material as the wetted part, resist to corrosion & high temperature, suitable for various special media.
- Equipped with special drive control or user's self-control available
- Widely used in environmental analyzers, medical analysis equipment and other high-precision analysis instruments

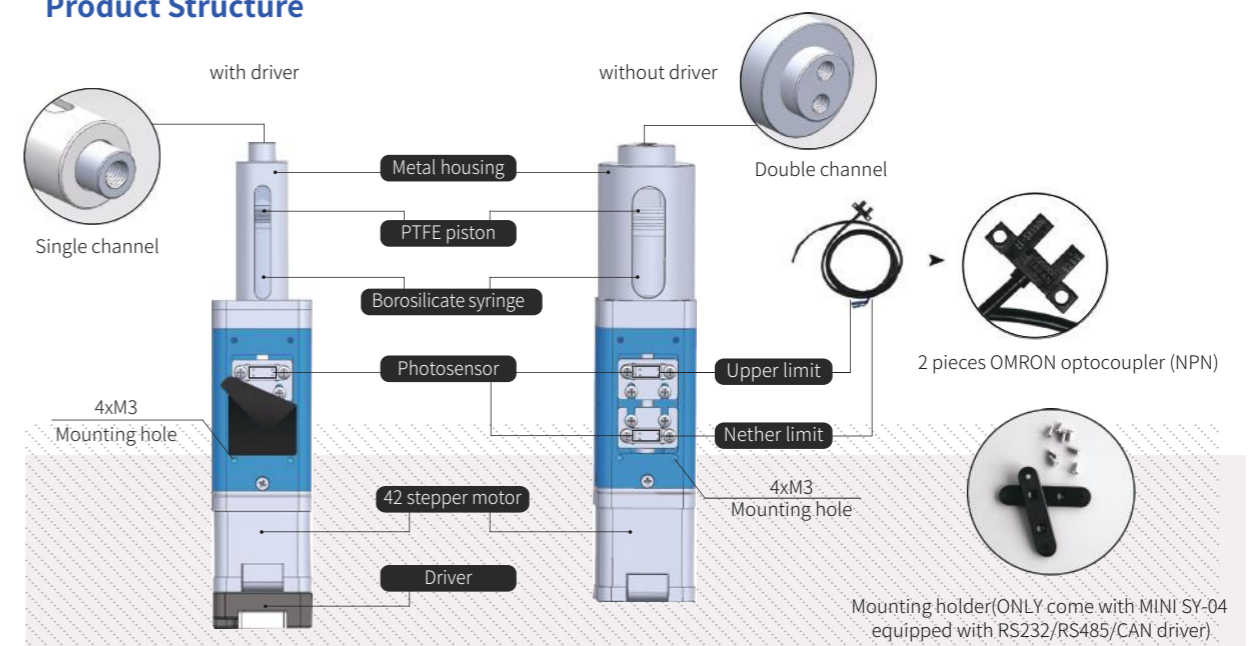
**ZSB-LS - 0.9 - 1 - 5 - 1 - Q**

Model No.	0.9° Step motor	Lead 1mm	Volume	Channel	Driver
①	②	③	④	⑤	⑥
5	10	20	1	2	Q
5ml	10ml	20ml	Single channel	Double channel	With driver
					Without driver

### Technical Parameters

Accuracy	≤1%@100% rated stroke		
Precision (Repeatability)	0.3%~0.7%@100% stroke		
Pressure rating	0~1.2Mpa (water)/ 0~1.0Mpa (air)		
Service life	3 million times no leakage (media: water ; 1 rated stroke=one time)		
Initial position detection	Photosensor detect original piston position		
	<b>5ml</b>	<b>10ml</b>	<b>20ml</b>
Rated stroke (control steps)	30mm(12000 steps)	24.08mm(9632 steps)	24mm(9600 steps)
Maximum speed	300rpm	300rpm	250rpm
Linear speed	0.017~5mm/s	0.017~5mm/s	0.017~4.167mm/s
Running time (per rated stroke)	6~1765s	4.82~1416s	5.76~1412s
Resolution	0.0025mm/0.4154μl	0.0025mm/1.0382μl	0.0025mm/2.0833μl
Syringe ID	14.55mm	23.03mm	32.57mm
Actuator	Ball screw (Lead 1mm)		
Max. piston drive	≥100N		
Sub. piston drive	≥45N		
Wetted material	Borosilicate glass, PTFE		
Connection	1/4-28UNF		
Communication	RS232/RS485/CAN		
Baud rate	RS232/RS485: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps CAN: 100Kbps, 200Kbps, 500Kbps, 1Mbps		
Address & Parameter setting	Via communication		
Power supply	DC24V/1.5A		
Operating temperature	5°C~55°C		
Operating humidity	<80% relative humidity, non-condensing		
Dimension (L*W*H)	42*42*191mm (without driver)		42*42*206.2mm (with driver)
Net weight	0.72kg		

### Product Structure



### Product Function

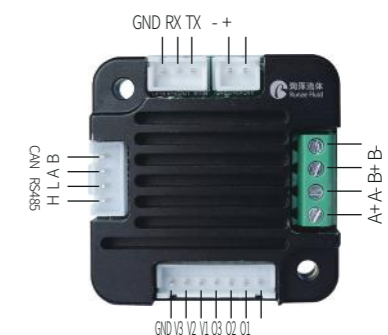
Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	1rpm - 300 rpm (air and liquid maybe different)
Subdivision setting	When speed at 1rpm, motor subdivision must be 256
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate etc.
Version query	Query firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status
Power memory	When motor suddenly stops, current position can be queried from the distance between current position with the origin
Collision protection	Upper and nether optocoupler to limit the piston position

### Driver Port

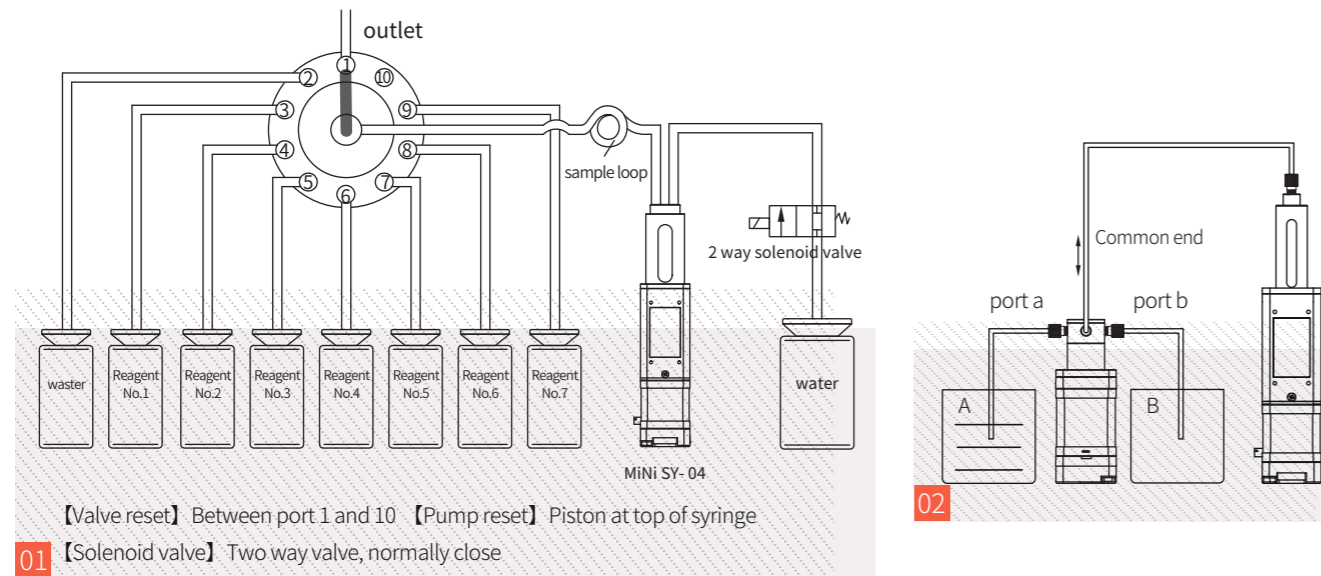
Port	Description	Port	Description
H	CANH	B+/B-	Phase B wiring
L	CANL	A+/A-	Phase A wiring
A	RS485 A	O <sub>1</sub>	Photosensor wiring port
B	RS485 B	O <sub>2</sub>	
GND	GND	O <sub>3</sub>	
RX	RS232 data output	V <sub>1</sub>	
TX	RS232 data input	V <sub>2</sub>	
-	DC24V negative	V <sub>3</sub>	
+	DC24V positive	GND	

### Motor Parameter

Max. power	9.2W
Step angle	0.9°
Phase	2
Phase voltage	4.6V
Phase current	1.0A
Resistance	4.6Ω±0.48
Inductance	18.6mH REF
Insulation	100m Ω MIN
Max. temperature	80°C MAX
Insulation grade	B



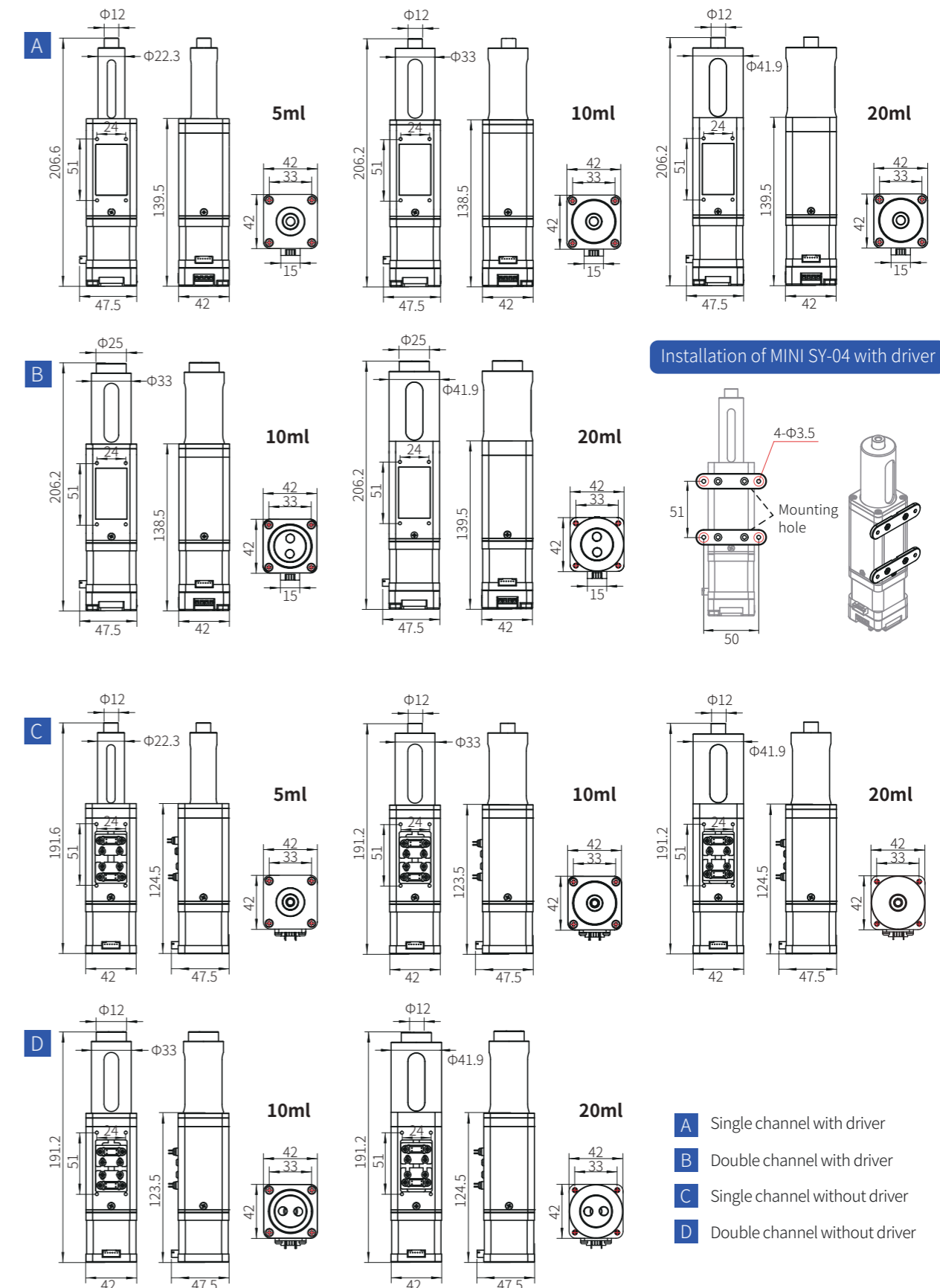
### Cross Contamination Free System



【Valve reset】 Between port 1 and 10 【Pump reset】 Piston at top of syringe  
 01 【Solenoid valve】 Two way valve, normally close

02

### Dimension (unit: mm)



Installation of MINI SY-04 with driver

Mini SY-04  
Syringe Pump

05  
+  
06

- A Single channel with driver
- B Double channel with driver
- C Single channel without driver
- D Double channel without driver

01

#### Perfusion steps

Tubing shown in 01

1. Reset selector valve, open two way solenoid valve, syringe pump aspirate water (the volume must be little more than liquid in the storage loop)
2. After water aspiration, close two way solenoid valve, selector valve switch to port 2, syringe pump reset and empty
3. Selector valve switch to port 3, reagent 1 was aspirated into storage loop through selector valve (the volume depends on tubing length and inner diameter)
4. Selector valve switch to port 2, syringe pump reset and empty
5. Selector valve switch to port 10 (air port), syringe pump aspirates 1ml air and switch to port 3 to discharge 100μl air, then switch to port 2 to empty

01

#### Sampling steps

Tubing shown in 01

1. Reset selector valve, open two way solenoid valve, syringe pump aspirates water
2. After water aspiration, close two way solenoid valve, selector valve switch to port 2, syringe pump reset and empty
3. Selector valve switch to port 3, syringe pump aspirates certain volume of reagent (suction volume more than target volume to ensure the accuracy)
4. Selector valve switch to port 2, syringe pump discharge 200μl, after 2s delayed, selector valve switch to port 1, syringe pump discharge target volume, then discharge and empty the rest liquid to port 2.
5. Selector valve switch to port 10, syringe pump aspirates 1ml air and discharge 0.5ml air to port 1, discharge 100μl air to port 3, then switch to port 2 to empty

02

Tubing shown in 02

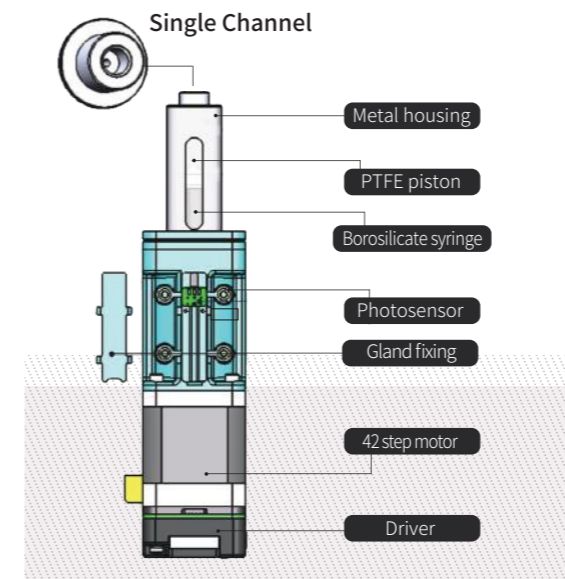
1. To make syringe pump aspirate liquid, power on solenoid valve, NO (normally open) and common port of solenoid valve connected, pump aspirate liquid from box A into syringe pump;
2. To make syringe pump discharge liquid, power on solenoid valve, NO (normally open) closed, NC (normally close) opened and connected with common port, pump discharge liquid from syringe into box B.

## SY-08 Syringe Pump



- Compact size, easy mounting, space-saving, long service life
- Industrial syringe pump with high precision in micro-liquid transferring and high performance.
- Wetted material borosilicate glass and PTFE, corrosion resistance, high temperature resistance, biocompatible and suitable for a variety of special media.
- Widely used in a variety of analysis equipment such as environmental analysis instruments, medical analysis instruments, non-standard sampling facilities in high-precision, etc.

### Product Structure



### Product Function

Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	5ml、12.5ml: from 1 rpm to 600 rpm 25ml: from 1 rpm to 500 rpm (There are difference for gas, liquid and models)
Subdivision setting	subdivision 2-32 are settable
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate, etc.
Version query	Query current firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin/home position
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status

ZSB08-LS - 0.9 - 1 - 5 - 1 - Q

Model No.

0.9° Step angle

Screw Lead 1mm

①

Volume

Single channel

With Driver

①

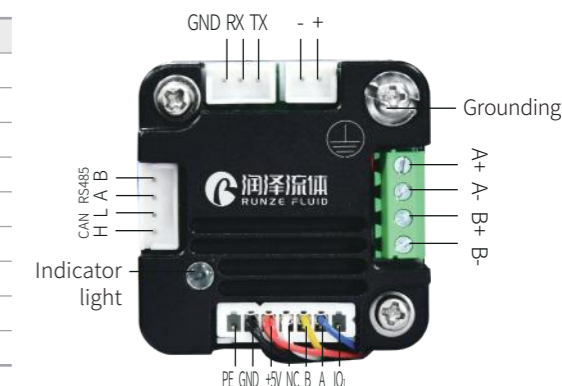
5	Volume 5ml
12.5	Volume 12.5ml
25	Volume 25ml

### Technical Parameter

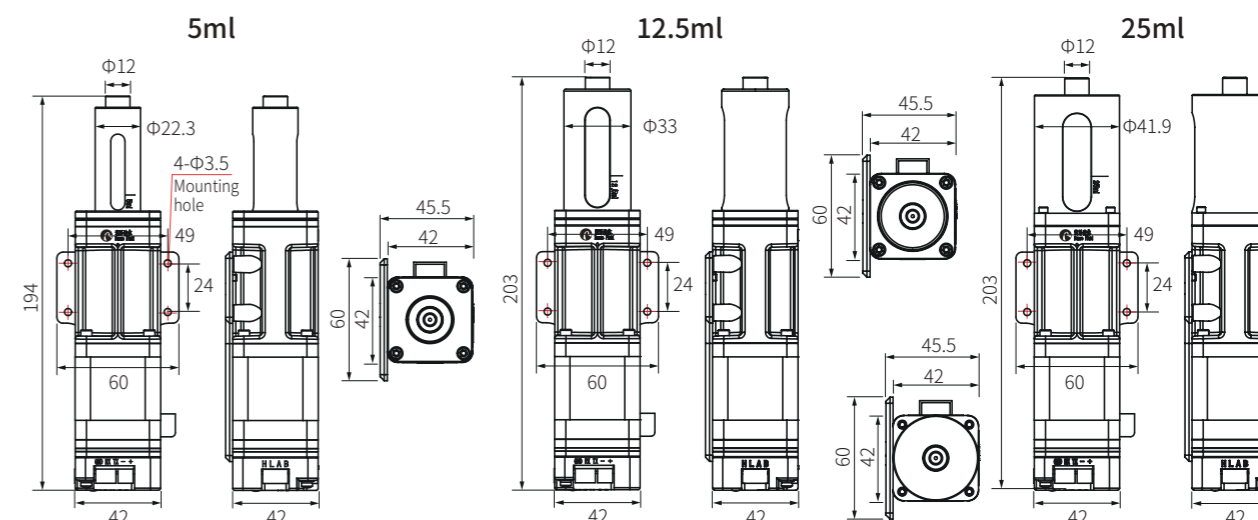
Accuracy	≤1%@100% (rated stroke)		
Precision (Repeatability)	0.3%-0.7%@100% (rated stroke)		
Service life	3 million times no leakage (media: water; 1 rated stroke = one time)		
Volume	5ml	12.5ml	25ml
Back Pressure	0.95Mpa	0.9Mpa	0.5Mpa
Rated Stroke (control steps)	30mm(12000steps)	30mm(12000steps)	30mm(12000steps)
Maximum speed	600rpm	600rpm	500rpm
Linear speed	0.017~10mm/s	0.017~10mm/s	0.017~8.33mm/s
Running time (per rated stroke)	3~1800s	3~1800s	3.6~1800s
Resolution	0.0025mm/0.416μl	0.0025mm/1.042μl	0.0025mm/2.083μl
Syringe ID	14.55mm	23.03mm	32.57mm
Actuator	Trapezoidal screw (Lead 1mm)		
Max. piston drive	≥100N		
Wetted Material	Borosilicate glass, PCTFE valve head, PTFE piston		
Max. Pressure	Positive: 0-0.8Mpa, Negative: 0-0.06Mpa, (retention time based on test)		
Channel	Single channel		
Connection	1/4-28UNF		
Baud rate	RS232/RS485: 9600bps / 19200bps / 38400bps / 57600bps / 115200bps CAN: 100Kbps/200Kbps/500Kbps/1Mbps		
Address & Parameter setting	Via Communication		
Power supply	DC24V/3A		
Operating temperature	5°C~55°C		
Operating humidity	≤ 80% relative humidity, non-condensing		
Dimension (L*W*H)	42*42*192.8mm	42*42*201.8mm	42*42*201.8mm
Net Weight	0.56KG	0.62KG	0.66KG

### Driver Port Definition

Port	Description	Port	Description
+	DC24V Positive	A+/A-	Phase A wiring
-	DC24V Negative	B+/B-	Phase B wiring
TX	RS232 Data Input	IO <sub>1</sub>	NC
RX	RS232 Data Output	IO <sub>2</sub>	Encoder Phase A
GND	RS232 GND	IO <sub>3</sub>	Encoder Phase B
H	CANH	IO <sub>4</sub>	IO <sub>4</sub> Optocoupler signal
L	CANL	+5V	Power positive
A	RS485A	GND	GND
B	RS485B	PE	Grounding



### Dimension (unit: mm)



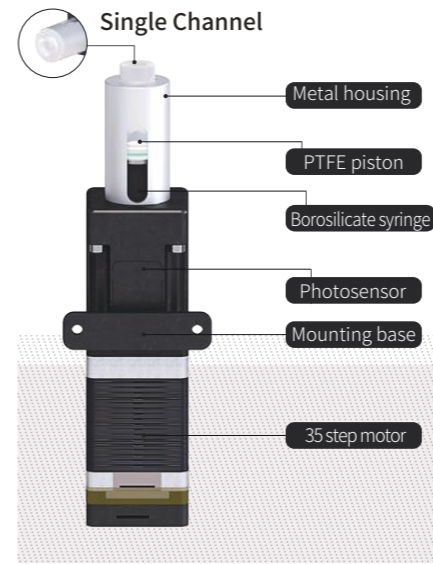


# SY-09 Syringe Pump



- Compact size, easy mounting, space-saving, long service life
- An industrial Syringe Pump with high precision & high performance in micro-liquid transferring self-developed by Runze Fluid.
- Make step motor move in clockwise or counterclockwise by receiving instructions from the host computer. The circular motion is converted into linear motion by the trapezoidal screw to make the piston move up and down which applied in medical analysis equipment, chromatographic analyzers, food and beverages detection and analysis system, water quality on-line analyzer, petroleum detection equipment and biopharmaceutical extraction devices

## Product Structure



## Product Function

Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	3ml: from 1 rpm to 600 rpm 8ml: from 1 rpm to 300 rpm (There are difference for gas, liquid and models)
Subdivision setting	subdivision 2-32 are settable
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate, etc.
Version query	Query current firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin/home position
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status

ZSB-LS - 1.8 - 1 - 3 - M - Q

Model No.    1.8° Step angle    Screw Lead 1mm    Volume    With code disk    With Driver

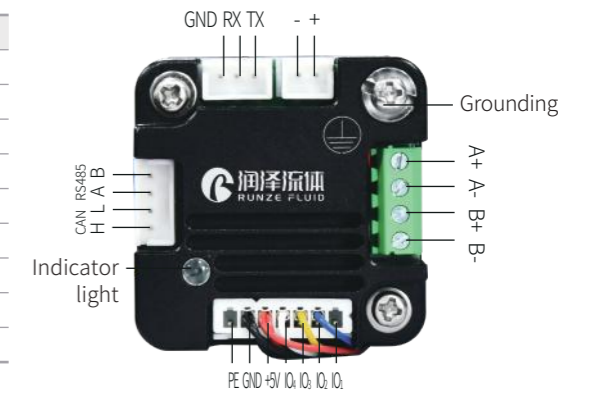
3	Volume 3ml
8	Volume 8ml

## Technical Parameter

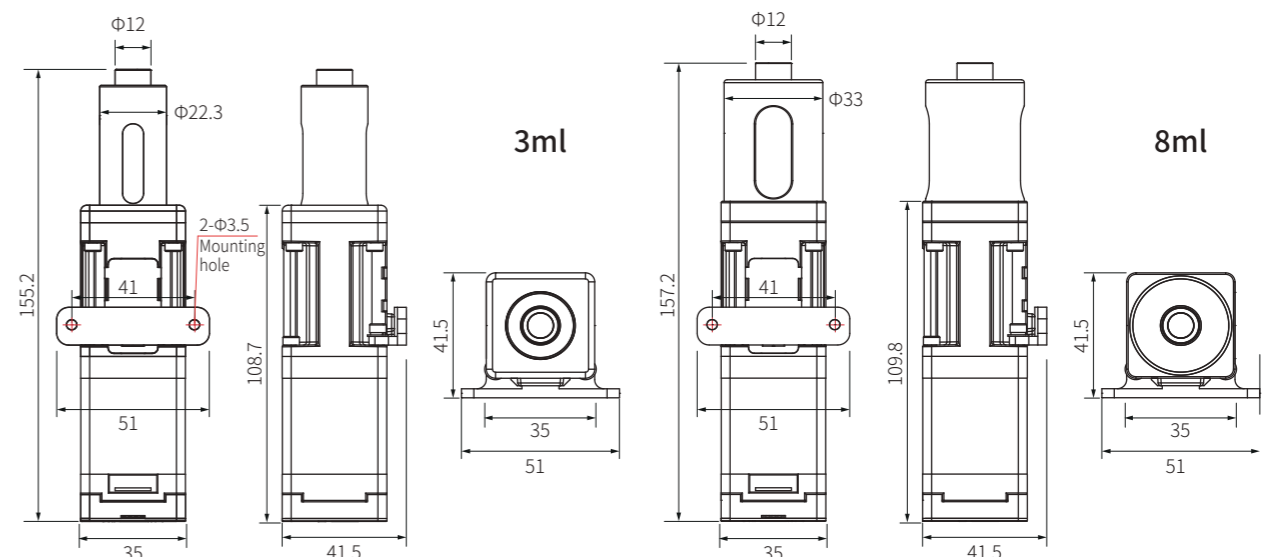
Accuracy	≤1%@100% (rated stroke)	
Precision (Repeatability)	0.3%-0.7%@100% (rated stroke)	
Service life	3 million times no leakage (media: water; 1 rated stroke = one time)	
Volume	<b>3ml</b>	<b>8ml</b>
Rated Stroke (control steps)	18mm(3600steps)	19.2mm(3840steps)
Maximum speed	600rpm	300rpm
Linear speed	0.017-10mm/s	0.017- 5mm/s
Running time (per rated stroke)	1.8-1080s	3.84-1129s
Resolution	0.005mm/0.833μl	0.005mm/2.083μl
Syringe ID	14.55mm	23.03mm
Actuator	Trapezoidal screw (Lead 1mm)	
Wetted Material	Borosilicate glass, PCTFE valve head, PTFE piston	
Max. Pressure	Positive: 0-0.8Mpa, Negative:0-0.06Mpa, (retention time based on test)	
Channel	Single channel	
Connection	1/4-28UNF	
Baud rate	RS232/RS485: 9600bps / 19200bps / 38400bps / 57600bps / 115200bps CAN: 100Kbps/200Kbps/500Kbps/1Mbps	
Address & Parameter setting	Via Communication	
Rated power	15W	
Power supply	DC24V/3A	
Operating temperature	5°C~55°C	
Operating humidity	≤ 80% relative humidity, non-condensing	
Dimension (L*W*H)	51*41.5*155.2mm	51*41.5*157.2mm
Net Weight	0.56kg	0.62kg

## Driver Port Definition

Port	Description	Port	Description
+	DC24V Positive	A+/A-	Phase A wiring
-	DC24V Negative	B+/B-	Phase B wiring
TX	RS232 Data Input	IO <sub>1</sub>	NC
RX	RS232 Data Output	IO <sub>2</sub>	Encoder Phase A
GND	RS232 GND	IO <sub>3</sub>	Encoder Phase B
H	CANH	IO <sub>4</sub>	IO <sub>4</sub> Optocoupler signal
L	CANL	+5V	Power positive
A	RS485A	GND	GND
B	RS485B	PE	Grounding



## Dimension (unit: mm)



## Smart SY-01B Syringe Pump



- Smart SY-01B syringe pump is the newest member in the series of micro-syringe pumps self-developed by Runze Fluid, which can handling fluids from microliters to milliliters with extraordinary accuracy and precision.
- Accommodates distribution valves and syringe in a variety of configuration which can meet various users' requirement on high-precision liquid transferring
- Multiple pumps can be used in series
- Excellent performance provides a guarantee and convenience for the user's project

ZSB-SY01B - 30 - M01 - 3

Model No.      Rated Stroke 30mm      Valve model      12000 control steps (ASC II Code)

Valve Model			
M01	M02	M03	M04
M05	M06	M10	M12

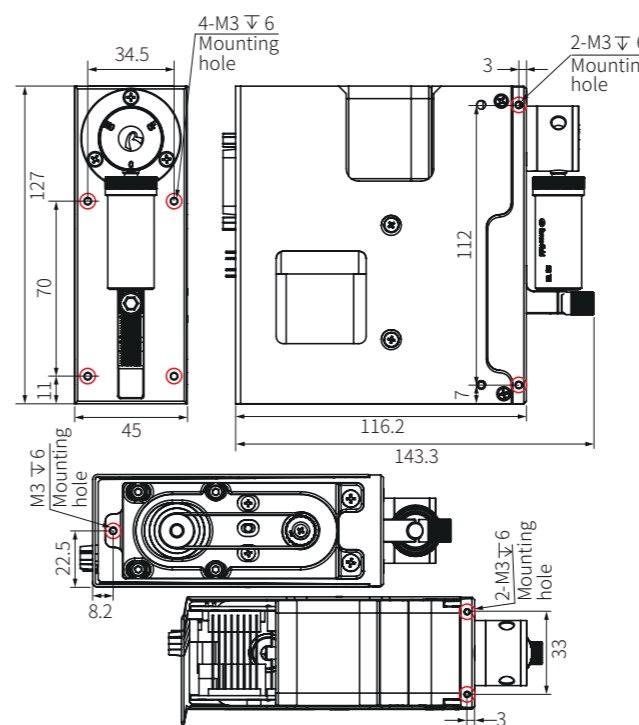
### Technical Parameter (ASC II Code)

Accuracy	≤1%@100% rated stroke
Precision (Repeatability)	0.3%~0.5%@100% rated stroke
Rated stroke (control steps)	30mm(12000 steps standard mode; 96000 steps micro-step mode)
Maximum speed	450rpm
Linear speed	0.0333mm/s ~ 15mm/s(media: water ; 1 rated stroke=one time)
Running time (per rated stroke)	2s ~ 900s(media: water ; 1 rated stroke=one time)
Resolution	0.0025mm (per step)
Syringe configuration	25μl, 50μl, 125μl, 250μl, 500μl, 1.25ml, 2.5ml, 5ml
Valve Model(available)	M01、 M02、 M03、 M04、 M05、 M06、 M10、 M12
Wetted material	Borosilicate glass, PTFE, Sapphire, PCTFE
Max. Pressure Rating	0.7Mpa
Actuator	Trapezoidal screw (Lead 2mm)
Connection	1/4-28UNF
Baud rate	RS232/RS485: 9600bps /19200bps/38400bps/57600bps/115200bps CAN: 100kbps / 200kbps/ 500kbps/1Mbps
Communication address	Up to 15 individual addresses can be provided
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory
Power supply	DC24V/3A
Operating temperature	5°C~55°C
Operating humidity	<80% relative humidity, non-condensing
Dimension (L*W*H)	45*143.3*127mm
Net weight	1.5kg

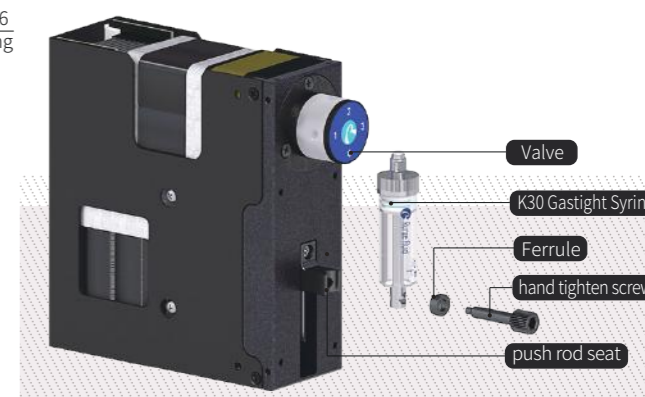
### Valve Model (C connected with syringe)

Valve Model: M01 Fluid Logic: Y Flow Path (C-1/1-2/C-2 interlinked)	
Valve Model: M02 Fluid Logic: T Flow Path (C-1-2/C-1/1-2/C-2 interlinked)	
Valve Model: M03 Fluid Logic: Distribution Flow Path (C-1/C-2/C-3 interlinked)	
Valve Model: M04 Fluid Logic: Radio Flow Path (C-1/1-2/2-3/C-3 interlinked)	
Valve Model: M05 Fluid Logic: Bi-pass Flow Path (C-1/2-3 interlinked, C-3/1-2 interlinked)	
Valve Model: M06 Fluid Logic: Distribution Flow Path (C selectively link to port 1-6)	
Valve Model: M10 Fluid Logic: Distribution Flow Path (C selectively link to port 1-9)	
Valve Model: M12 Fluid Logic: Distribution Flow Path (C selectively link to port 1-12)	

### Dimension (unit: mm)



### Product Structure



## SY-03B Syringe Pump



- SY-03B is a micro-syringe pump with extraordinary-precision in the series of high-end products developed by Runze Fluid.
- Accommodates distribution valves and syringes in a variety of configurations. Transfers liquid in high precision which can meet most users' requirements.
- Can be used in series with multiple pumps.
- Fully programmable pump module with open framework, which handling fluids from microliters to milliliters with extraordinary accuracy and precision.
- With functions in automatic pipetting, dilution and dispensing.
- Controlled by an external computer or microprocessor.

ZSB-SY03B - 60 - M01 - 3

Model No.      Rated Stroke 60mm      Valve model      6000 control steps  
(ASC II Code)

Valve Model									
M01	M02	M03	M04	M05					
M06	M07	M08	M09	M10					

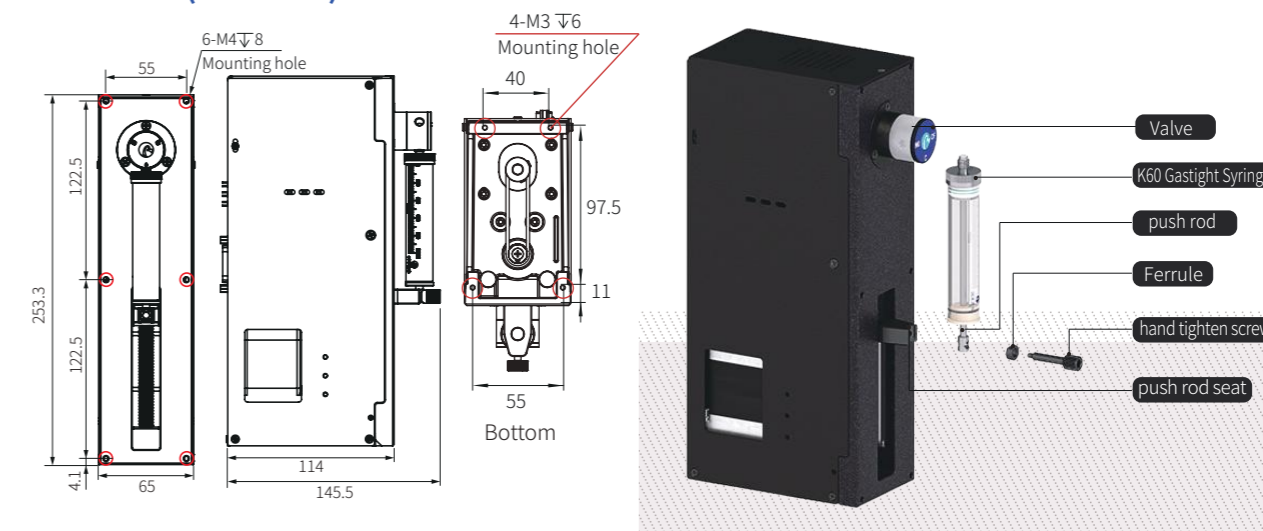
### Technical Parameter (ASC II Code)

Accuracy	≤1%@100% rated stroke
Precision (Repeatability)	0.3%~0.5%@100% rated stroke
Rated stroke (control steps)	60mm(6000 steps standard mode; 48000 steps micro-step mode)
RPM Range	0.1rpm ~900rpm
Linear speed	0.01mm/s ~ 60mm/s(media: water ; 1 rated stroke=one time)
Running time (per rated stroke)	1s ~ 900s(media: water ; 1 rated stroke=one time)
Resolution	0.01mm (per step)
Syringe configuration	25μl, 50μl, 100μl, 250μl, 500μl, 1ml, 2.5ml, 5ml, 10ml, 25ml
Valve Model(available)	M01、M02、M03、M04、M05、M06、M07、M08、M09、M10
Wetted material	Borosilicate glass, PTFE, Sapphire, PCTFE
Max. Pressure Rating	0.7Mpa
Actuator	Trapezoidal screw (Lead 6mm)
Connection	1/4-28UNF
Baud rate	RS232/RS485: 9600bps /19200bps/38400bps/57600bps/115200bps CAN: 100kbps / 200kbps/ 500kbps/1Mbps
Communication address	Up to 15 individual addresses can be provided
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory
Power supply	DC24V/3A
Operating temperature	5°C~55°C
Operating humidity	<80% relative humidity, non-condensing
Dimension (L*W*H)	65*145.5*253.3mm
Net weight	2.2kg

### Valve Model (C connected with syringe)

Valve Model: M01 Fluid Logic: Y Flow Path (C-1/1-2/C-2 interlinked)			
Valve Model: M02 Fluid Logic: T Flow Path (C-1-2/C-1/1-2/C-2 interlinked)			
Valve Model: M03 Fluid Logic: Distribution Flow Path (C-1/C-2/C-3 interlinked)			
Valve Model: M04 Fluid Logic: Radio Flow Path (C-1/1-2/2-3/C-3 interlinked)			
Valve Model: M05 Fluid Logic: Bi-pass Flow Path (C-1/2-3 interlinked, C-3/1-2 interlinked)			Valve Model: M06 Fluid Logic: Distribution Flow Path (C selectively link to port 1-6)
Valve Model: M07 Fluid Logic: Distribution Flow Path (C selectively link to port 1-8)		Valve Model: M08 Fluid Logic: Distribution Flow Path (C selectively link to port 1-10)	
Valve Model: M09 Fluid Logic: Distribution Flow Path (C selectively link to port 1-15)		Valve Model: M10 Fluid Logic: Distribution Flow Path (C selectively link to port 1-12)	

### Dimension (unit: mm)





## SY-03B DK Syringe Pump



- SY-03B Dk series product is a kind of micro-syringe pump with multiple syringes working in parallel in high precision developed by Runze Fluid.
- Use a stepper motor to drive the syringe and the valve to aspirate and dispense quantitative liquid.
- Fully programmable pump module with open framework, which handling fluids from microliters to milliliters with extraordinary accuracy and precision. With functions in automatic pipetting, dilution and dispensing.
- Controlled by an external computer or microprocessor.

**ZSB-SY03B DK - 60 - T1 - Z - PPS**

Model No.    Rated Stroke 60mm    Configuration    Solenoid valve    Valve material

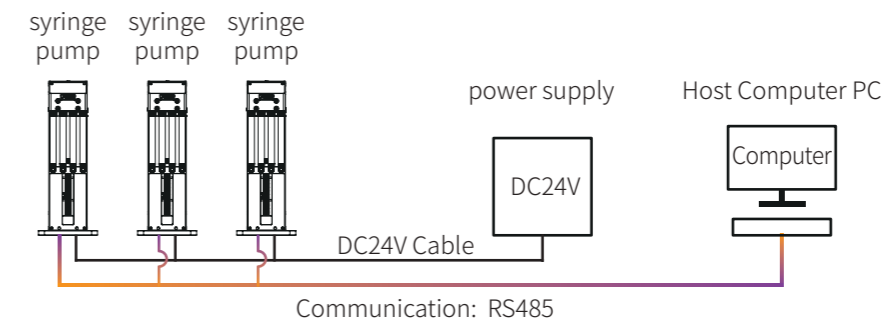
①	T1 1-port	②	Z without Solenoid valve	③	PPS Valve material PPS
	T2 2-port		F with Solenoid valve		PEEK Valve material PEEK
	T4 4-port				
	T6 6-port				
	T8 8-port				

### Technical Parameter (ASCII Code)

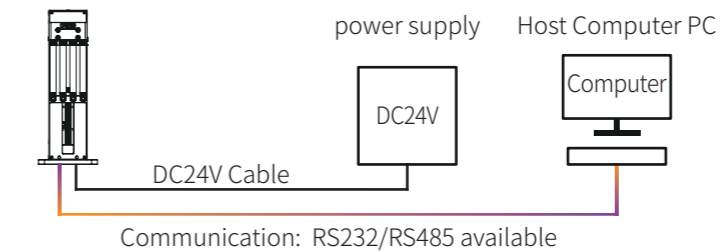
Accuracy	≤1%@100% rated stroke
Precision (Repeatability)	0.3%~0.5%@100% rated stroke
Rated stroke (control steps)	60mm(6000 steps standard mode; 48000 steps micro-step mode)
RPM Range	0.1rpm ~ 333rpm
Linear speed	0.01mm/s ~ 100mm/s(media: water ; 1 rated stroke=one time)
Running time (per rated stroke)	1.8s ~ 6000s(media: water ; 1 rated stroke=one time)
Resolution	0.01mm (per step)
Valve Type	Solenoid valve
Syringe configuration	25μl, 50μl, 100μl, 250μl, 500μl, 1ml, 1.25ml, 2.5ml, 5ml
Wetted material	Borosilicate glass, PTFE, FKM, PEEK(PPS)
Max. Pressure Rating	0.2Mpa
Actuator	Trapezoidal screw (Lead 6mm)
Connection	1/4-28UNF
Baud rate	RS232/RS485: 9600bps, 38400bps
Communication address	Up to 15 individual addresses can be provided
Firmware	Programmable acceleration/deceleration, termination of movement, programmable piston speed, diagnostic query error, programmable clearance compensation, absolute position or relative position, change speed on the fly, programmable Non-Volatile Memory
Power supply	DC24V/3A
Operating temperature	5°C~55°C
Operating humidity	<80% relative humidity, non-condensing
Dimension (L*W*H)	65*150*261.3mm
Net weight	2.2kg

### Wiring Diagram

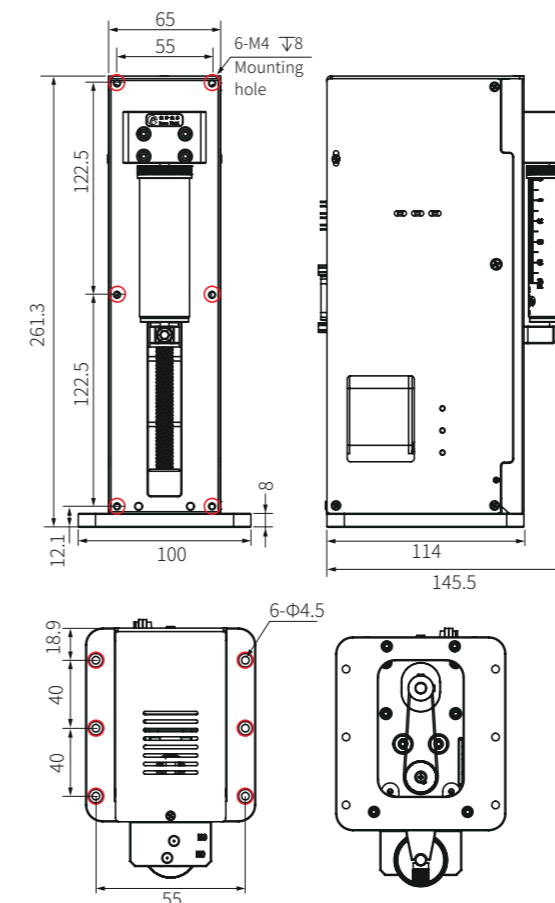
Multiple syringe pumps controlled in parallel



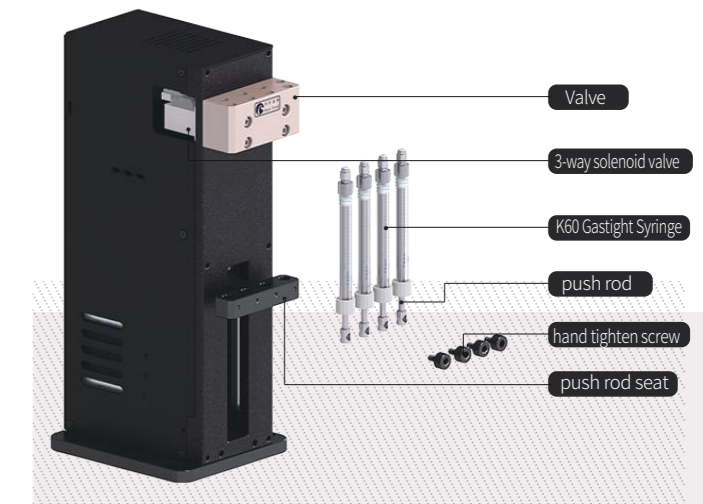
Single controlled syringe pump



### Dimension (unit: mm)



### Product Structure



## Rpm-01 Syringe Pump



- High precision continuous liquid transferring instead of peristaltic pump
- Compact size compact size, easy mounting, space-saving
- High Repeatability, long service life, maintenance-free
- Wetted material borosilicate glass and PTFE, corrosion resistance, biocompatible, non-contamination
- NMB stepper motor, long service life, high accuracy, reliability and stability
- RS232/RS485/CAN communication driver optional

**RPM-01 - D - 42 - 1 - W01**

Model No.      single side    42 stepper motor    Volume    Optocoupler/Drive Optional

①		②	
1	1ml	W00	Without optocoupler & drive
2	2ml	W01	With optocoupler & without drive
3	3ml	Y02	With optocoupler & drive

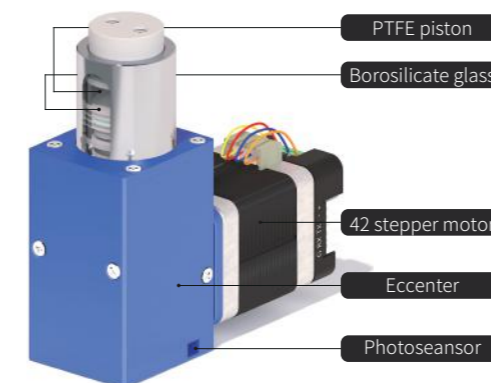
### Technical Parameter

Rated volume	1ml	2ml	3ml
Resolution	1ml		
Accuracy	±1%@100% reciprocal stroke		
Precision (Repeatability)	0.3%~0.7%(100% stroke)		
Pressure rating	Max. 0.3Mpa		
Service life	3 million times no leakage (media: water; 1 rated stroke=one time)		
Max. speed	180rpm		
Min. speed	1rpm/min		
Flow range	1 - 360ml/min		
Actuator	Eccenter		
Wetted material	Borosilicate glass, PTFE piston/outlet		
Connection	1/4-28UNF		
Communication	RS485/RS232/CAN		
Power supply	DC24V/1.5A		
Operating temperature	5°C-55°C		
Operating humidity	<80% relative humidity, non-condensing		
Dimension(L*W*H)	98.3*42*116.4mm		
Net weight	0.8kg		

### Motor Parameter

42 stepper motor			
Max. power	9.2W	Resistance	3.8Ω±0.38
Step angle	1.8°	Inductance	5.2mH REF
Phase	2	Insulation	100m Ω MIN
Phase voltage	4.2V	Max. Temp	80°C MAX
Phase current	1.1A	Insulation grade	B

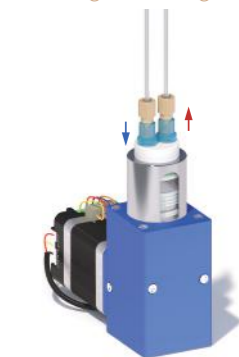
### Product Structure



**Flexible Tube Connection**  
Barbed check valve  
+ Male-to-barb adapter



**Rigid Tube Connection**  
Threaded check valve  
+ Flangeless fittings



### Component

RPM-01 eccentric syringe pump was made of PTFE piston, borosilicate syringe, 42stepper motor, eccentric inset, crank web, pushrod, Panasonic photosensor, other mechanical parts.

### Classification

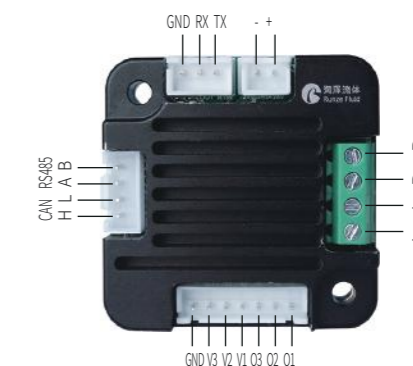
Rpm-01-D 1ml 2ml 3ml syringe pump aspiration and discharge 1ml 2ml 3ml when motor runs 1 circle (360°)

### Panasonic photosensor (optional)

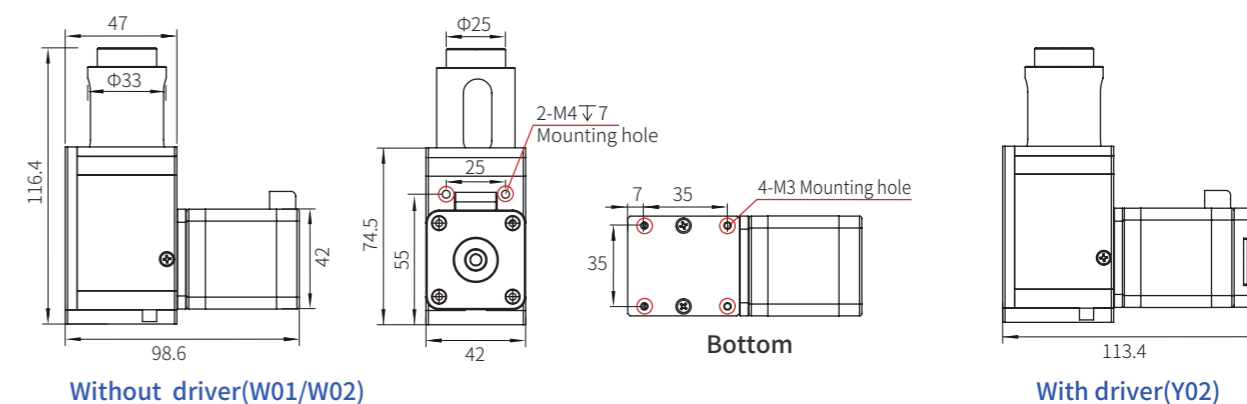
Inset Panasonic photosensor (optional) helps to protect the syringe pump from collision and anti external interference.

### Driver Port (optional)

Port	Description	Port	Description
H	CANH	B+/B-	Phase B wiring
L	CANL	A+/A-	Phase A wiring
A	RS485 A	O1	Photosensor wiring port
B	RS485 B	O2	
GND	GND	O3	
RX	RS232 data output	V1	
TX	RS232 data input	V2	
-	DC24V negative	V3	
+	DC24V positive	GND	



### Dimension (unit: mm)



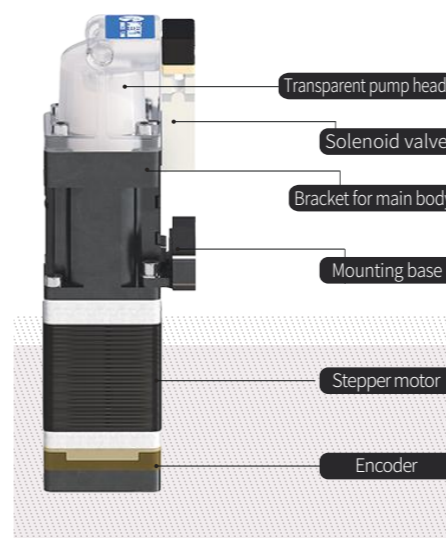


# Rp-01 Piston Pump



Micro piston pump is a type of small volume precision pump with the flexible control options of the encoder, driver, solenoid valve, it is mostly equipped in medical analysis systems for delivering fluid in microliters or milliliters with very high precision, wetted materials are corrosion resistance and biocompatible for most chemicals or solvents, small footprint and high cost performance make it a very special choice for high precision fluid treatment in medical and biological analytical systems.

## Product Structure



## Product Function

Address setting	Address settable via serial port
Baud rate setting	RS232/RS485/CAN baud rate settable
CAN destination address setting	When multiple devices controlled in paralleling, any device can be set with priority address
Speed setting	1rpm - 500 rpm (air and liquid maybe different)/min
Subdivision setting	Motor subdivision vary from 2 to 32
Reset interior data	Factory reset
Parameter query	Query address, speed, subdivision, baud rate etc.
Version query	Query firmware version
Motor direction	CW/CCW settable
Reset	Return piston to the origin
Strong stop	Strong stop the running motor
Motor status query	Detect current motor status
Power memory	When motor suddenly stops, current position can be queried from the distance between current position with the origin
Collision protection	Upper and nether optocoupler to limit the piston position

ZSB-RP01-LS - 1.8 - 1 - 6 - M-Q - F-2

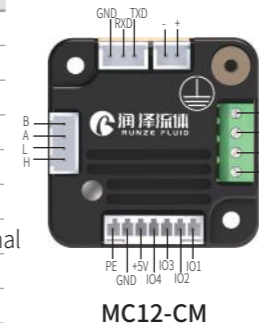
Model No.	1.8°Step motor	Lead 1mm	Volume 6ml	Encoder/Driver	Solenoid Valve Hole Quantity
1	single-hole without encoder and driver				
M-Q-1	single-hole with encoder and driver				
M-Q-F-2	double-hole with solenoid valve, encoder and driver				

## Technical Parameters

Accuracy	≤1%@100% rated stroke
Precision (Repeatability)	0.3%~0.7% (100% rated stroke)
Service life	3 million times no leakage (media: water; 1 rated stroke=one time)
Initial position detection	Photoelectric detects original piston position
Valve head	<b>Single hole</b> <b>Double-hole with valve</b>
Dead volume	1.45ml                                  1.716ml
Volume	6ml
Rated stroke (control steps)	19.1mm (3820 steps)
Maximum speed	500rpm
Linear speed	0.017~8.33mm/s
Running time (per rated stroke)	2.292s(500rpm) ~1146s(1rpm)
Resolution	0.005mm/1.5707μl
Cylinder ID	20mm
Actuator	lead screw (lead 1mm)
Wetted material	PC, ceramics, PTFE
Maximum pressure	Positive air pressure 0~0.8Mpa    Negative air pressure 0~0.06Mpa (hold time 1min)
Connection	1/4-28UNF female thread
Power supply	DC24V/1.5A
Operating temperature	5~55°C
Operating humidity	<80%
Dimension (L*W*H)	51*41.5*131.5mm (Single hole, Without Encoder/Driver/Solenoid valve)
Weight	0.4kg (Single hole, Exclude Encoder/Driver/Solenoid valve)

## Driver & Valve Parameters

MC12-CM Driver Port			
Port	Description	Port	Description
H	CANH	B+/B-	Phase B wiring
L	CANL	A+/A-	Phase A wiring
A	RS485 A	IO1	NC
B	RS485 B	IO2	Encoder Phase A
GND	GND	IO3	Encoder Phase B
RX	RS232 data output	IO4	Optocoupler signal
TX	RS232 data input	+5V	Power positive
-	DC24V negative	GND	GND
+	DC24V positive	PE	Grounding



Parameters of Solenoid Valve	
Input Voltage	24V±10%
Starting Current	154mA
Standing Current	42mA
Starting Power	3.7W
Standing Power	<1W
Leak-allowed Current	4mA
Insulation Resistance	100M Ω MIN
Power Light	Red LED
Surge-proof	Surge absorbing diode

## Dimension (unit:mm)

