润泽流体 RUNZE FLUID

Analysis instrument accessories
Ecological closed loop service provider

V 1.8

SY-09 Syrinnge Pump Manual

南京润泽流体控制设备有限公司
NANJING RUNZE FLUID CONTROL EQUIPMENT CO.,LTD

Thank you very much for choosing our products. Please read and keep manual carefully before use.

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Chapter1 Product Introduction

1.1 SY-09 Features at-a-Glance

SY-09 syringe pump is a fully programmable, small compact size, high-precision liquid handling micro industrial pump module with stable performance & long service life, developed by RUNZE Company. Controlled by a host controlling system (external computer, microprocessor, PLC, etc.), the clockwise or counterclockwise circular motion of the stepper motor is converted into linear motion through the trapezoidal screw rod, which makes the syringe pump piston move up and down linearly to achieve aspirating and dispensing functions.

Configuration: 3ml, 8ml

Component: Borosilicate glass syringe, trapezoidal screw, optocoupler, stepper motor, driver

Usage: SY-09 syringe pump is widely used in liquid transferring system with high-precision and high-stability sampling requirements, such as laboratory instrument, medical analysis equipment, chromatographic analyzer, automatic biochemical analyzer, blood analyzer, trace element analyzer, electrolytic analyzer, food & beverages detection and analysis system, water quality on-line analyzer, petroleum detection equipment and biopharmaceutical extraction devices.

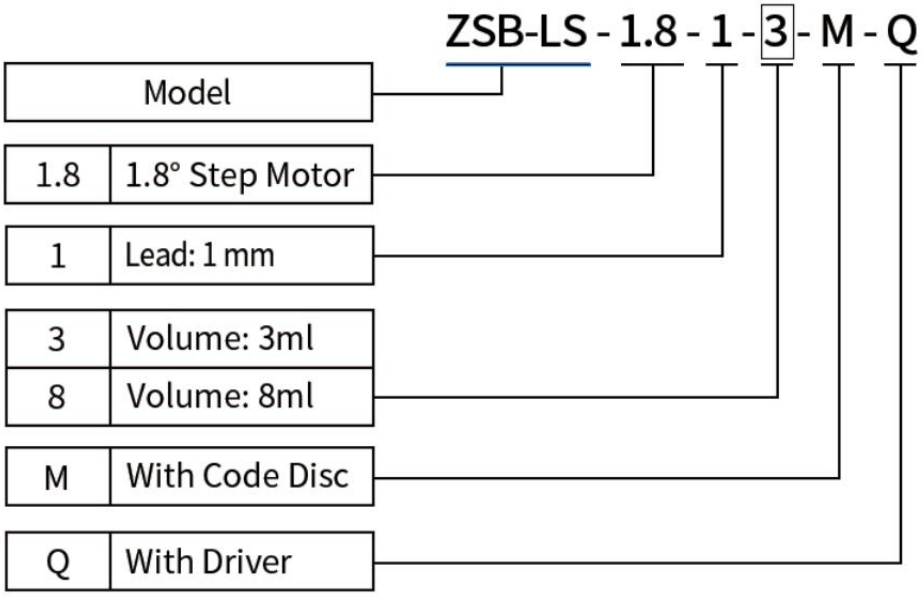
Chapter 2 Software Communication

2.1 Product features

- A small volume, space saving, high-precision, stable performance, and long service life micro industrial injection pump
- The wetted material is made of high borosilicate glass and polytetrafluoro, which is corrosion-resistant and high-temperature resistant, suitable for various special media
- Widely used in various analyzers such as environmental protection equipment, medical analysis equipment, non elevation precision sampling equipment, etc

2.2 Naming Rules

Parameters are shown in the model name as below:



For example: the 3ml syringe pump, with 1.8° stepper motor, single hole, female thread and driver is named ZSB-LS-1.8-1-3-M-Q.

2.3 Basic Parameters

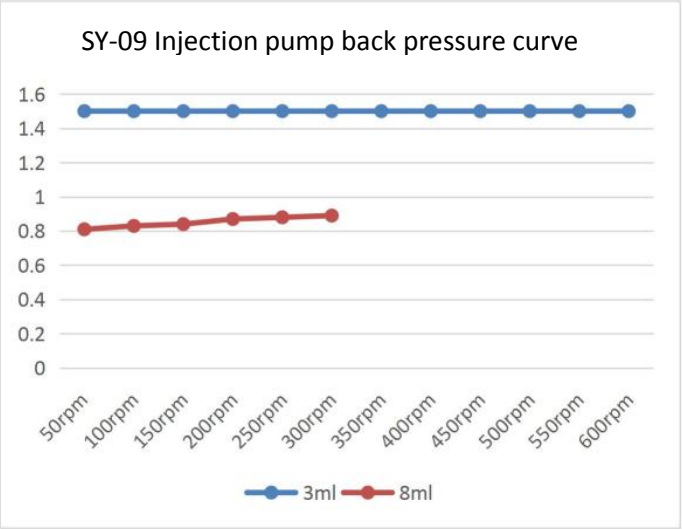
2.3.1 Technical Parameters

Product Function	Description	
Accuracy	≤1% (rated stroke)	
Precision (Repeatability)	0.3%-0.7% (rated stroke)	
Service life	3 million times no leakage (media: water; 1 rated stroke = one time)	
Volume	3 ml	8 ml
Rated stroke (Control steps)	18mm (7200 steps)	19.2mm (7680 steps)
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, PTFE piston, PCTFE	
Max. Pressure	Positive 0~0.8Mpa（retention time based on test） Negative 0~0.06Mpa（retention time based on test）	
Channel	Single channel	
Connection	1/4-28UNF	
Communication interface	RS232/RS485	
Baud rate	RS232/RS485：9600bps、38400bps	
Address & Parameter setting	Via communication	
Power supply	DC24V/3A	
Rated power	15W	
Operating temperature	5 ~ 55C°	
Operating humidity	≤80%（relative humidity, non-condensing）	
Dimension (L*W*H)	51*41.5*155.2	51*41.5*157.2
Weight	0.56kg	0.62kg

Note 1: Back pressure curve

Experimental conditions: room temperature, normal pressure, pure water

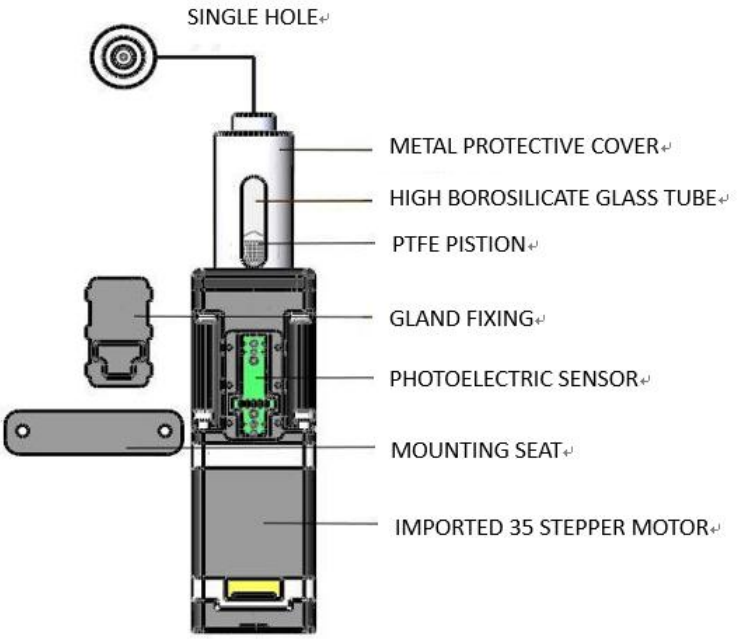
SY-09 Injection pump back pressure curve		
speed	Back pressure （Mpa）	
	3ml	8ml
50rpm	1.5	0.81
100rpm	1.5	0.83
150rpm	1.5	0.84
200rpm	1.5	0.87
250rpm	1.5	0.88
300rpm	1.5	0.89
350	1.5	/
400	1.5	/
450	1.5	/
500	1.5	/
550	1.5	/
600	1.5	/



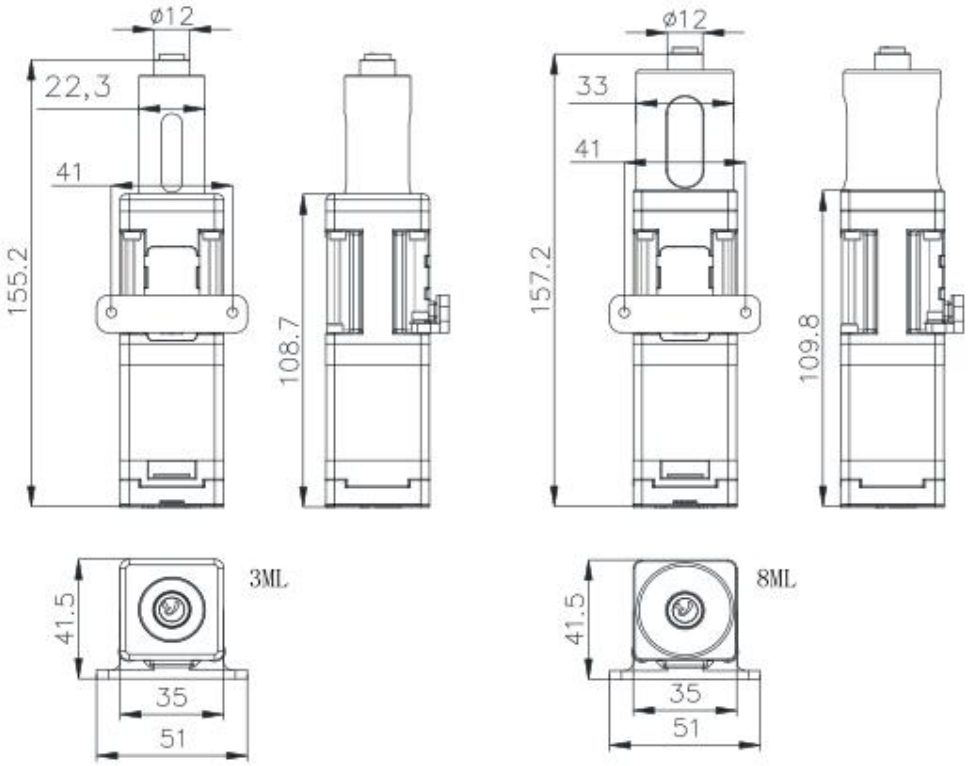
Chapter3 Product Introduction

3.1 Component installation

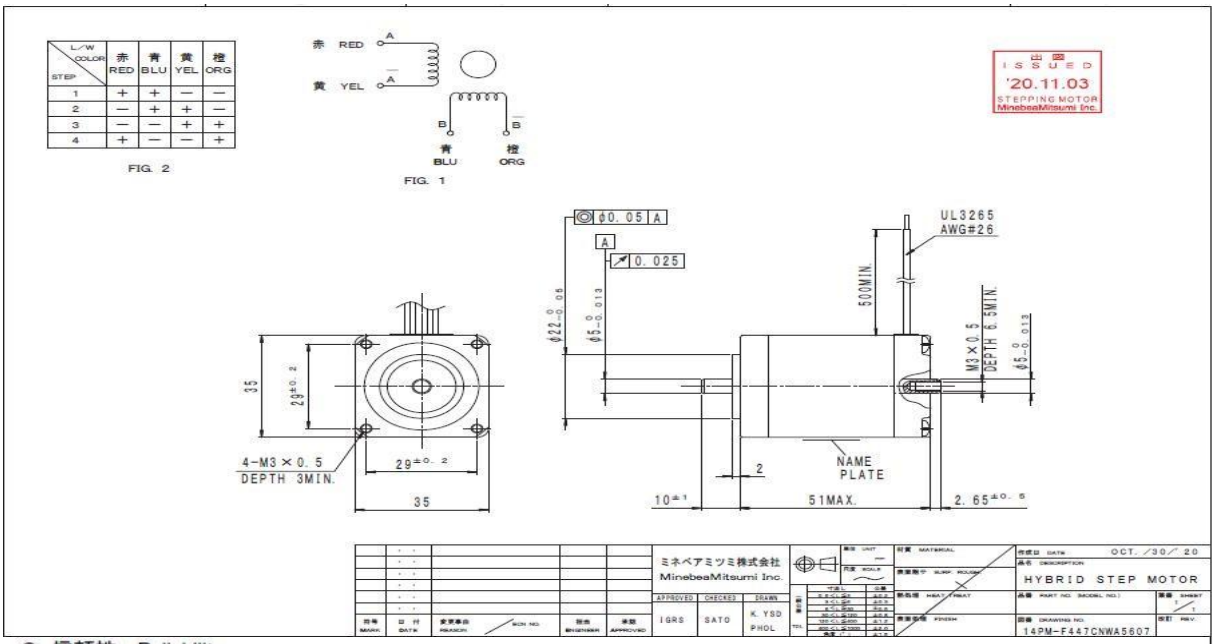
3.1.1 Syringe pump structure



3.2 Dimension without Driver（Unit：mm）



3.3 Manual for NMB 35 Stepper Motor



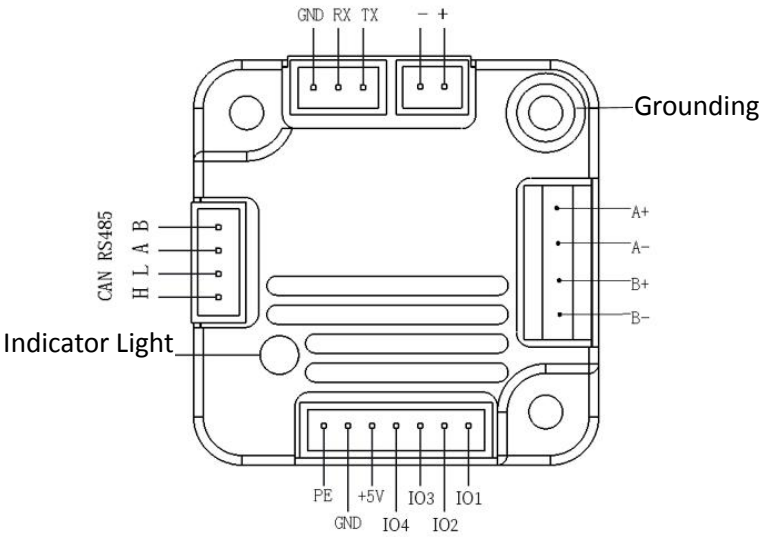
6. 信頼性 Reliability

下記条件で試験後、2項の電気的特性、3項の機械的特性を満足するものとする。
The product to be examined in the following condition and satisfy 2.Electrical characteristics and 3.Mechanical characteristics.

No.	試験項目 Item	試験条件 Test condition	参考規格 Reference standard
1	低温放置 Cold （耐寒性）	温 度 Temperature : −40 ℃ ±3 ℃ 試験時間 Test time : 96 h	JIS C 60068-2-1
2	高温放置 Dry heat （耐熱性）	温 度 Temperature : 85 ℃ ±2 ℃ 試験時間 Test time : 96 h	JIS C 60068-2-2
3	高温高湿放置 Damp heat （耐湿性）	温 度 Temperature : 60 ℃ ±2 ℃ (40 ℃ ±2 ℃) 湿 度 Humidity : 93 % +2 / −3 % 試験時間 Test time : 96 h	JIS C 60068-2-3
4	冷熱衝撃 Thermal shock （温度変化）	温 度 Temperature : 低温側 Cold −40 ℃ ±3 ℃ 1 h ↑ ↓ （温度移行時間：5 min 以内） (Temperature migration time: 5 min MAX.) 高温側 Dry heat 85 ℃ ±2 ℃ 1 h サイクル数 Number of cycle : 25 cycle	JIS C 60068-2-14
5	振動 Vibration	振動数範囲 Frequency range : 10 Hz ～ 55 Hz ～ 10 Hz 振 幅 Amplitude : 1.5 mm 掃引時間 Time coefficient: 1 min 加振方向 Direction of excitation: X, Y, Z 時 間 Time : 各方向 Each direction 2 h	JIS C 60068-2-6
6	衝撃 Shock	加速度 Acceleration : 981 m/s2 { 100 G } 正弦半波 Half-sine 作用時間 Interaction time: 6 ms 落下方向 Drop direction: ±X, ±Y, ±Z 落下回数 Number of drop: 各3回 Each 3 times	JIS C 60068-2-27

3.4 Port Definition

Diagram of the driver controller panel



Port definition for driver controller panel:

Port	Description	Port	Description
+	DC24V Positive	**A+、A-**	Stepper motor Phase A wiring
-	DC24V Negative	**B+、B-**	Stepper motor Phase B wiring
TX	RS232 Data input	**IO_1**	NC
RX	RS232 Data output	**A**	Encoder Phase A
GND	RS232 Grounding	**B**	Encoder Phase B
H	CAN H	**IO_4**	IO_4 Optocoupler signal
L	CAN L	**+5V**	Power positive
A	RS485 A	**GND**	GND
B	RS485 B	**PE**	Grounding

Chapter 4 Control Code Description

4.1 Brief Introduction

The data transmission between the syringe pump and the host controlling system (Computer, MCU, PLC, etc.) adopts serial communication (RS232, RS485, CAN bus). Description of the communication format as following: the communication adopts asynchronous serial communication, and the sum check with two bytes (2Byte) is adopted by the command & data frame. Commands & data in communication must be in hexadecimal. Parameters are stored in little-endian mode.

Communication interface: RS232, RS485, CAN bus;

Communication mode: two-way asynchronous, master-slave mode;

Baud rate: RS232&RS485: 9600bps, 19200bps, 38400bps,57600bps, 115200bps;

CAN : 100K, 200K, 500K, 1M;

Data bits: 8 Bit;

Parity check: no check;

Response time: <1 second after receiving the command

4.2 Installation & Debugging

1. Install the debugging tools, please refer to 《Debugging tools instructions》for details.

2. Instructions for use, please refer to 《SY09 Quick Use Guide》for details.

4.3 Communication Protocols

4.3.1 Command format

A: Interior parameters inquiry command (“Inquiry command”)

B: Device control command （” Operation command” ）

C: Device interior parameter command setting （” Factory command” ）

4.3.1.1 Common command format (Send 8 bytes, return 8 bytes)

Byte send:

B0	B1	B2	B3	B4	B5	B6	B7
FH (Frame header)	Address code	Function code	Status parameter		EOF (End of frame)	CUCUM (Cumulative sum)	
STX	ADDR	FUNC	1-8 Bit	9-16 Bit	ETX	Low byte	High byte

The 1st byte STX : Frame header （0xCC）

The 2nd byte ADDR : Slave address（0x00 ~ 0x7F）

Multicast address（0x80 ~ 0xFE）Broadcast address（0xFF）

The 3rd byte FUNC : Function code

The 4th , 5th byte : Parameters corresponding to the function code

The 6th byte ETX : End of frame（0xDD）

The 7th , 8th byte : Cumulative sum check code from byte 1 to 6

Byte return:

B0	B1	B2	B3	B4	B5	B6	B7
FH (Frame header)	Address code	Function code	Status parameter		EOF (End of frame)	CUCUM (Cumulative sum)	
STX	ADDR	STATUS	1-8 Bit	9-16 Bit	ETX	Low byte	High byte

The 1st byte STX : Frame header （0xCC）

The 2nd byte ADDR : Slave address（0x00 ~ 0x7F）

Multicast address（0x80 ~ 0xFE）Broadcast address（0xFF）

The 3rd byte FUNC : Function code

The 4th , 5th byte : Parameters corresponding to the function code

The 6th byte ETX : End of frame（0xDD）

The 7th , 8th byte : Cumulative sum check code from byte 1 to 6

A： Interior parameters inquiry command ("Inquiry command")（B2～B4）

Command B2	Specification	Response Parameters B3、B4
0x20	Query address	The value of address is 0x0000 ~ 0x007F and the default is 00.
0x21	Query RS232 baud rate	There are five baud rates: factory default is 9600bps. B3B4=0x0000 Corresponding baud rate is 9600bps. B3B4=0x0001 Corresponding baud rate is 19200bps. B3B4=0x0002 Corresponding baud rate is 38400bps. B3B4=0x0003 Corresponding baud rate is 57600bps. B3B4=0x0004 Corresponding baud rate is 115200bps.
0x22	Query RS485 baud rate	
0x23	Query CAN baud rate	Corresponding CAN baud rate: B3B4=0x0000 100Kbps B3B4=0x0001 200Kbps B3B4=0x0002 500Kbps B3B4=0x0003 1Mbps
0x25	Query subdivision	Corresponding subdivision: B3B4=0x0001 2 subdivision

		B3B4=0x0002 4 subdivision B3B4=0x0003 8 subdivision B3B4=0x0004 16 subdivision B3B4=0x0005 32 subdivision
0x27	Query maximum speed	Maximum speed range of 3ml is 0x0000 ~ 0x0258. Maximum speed range of 8ml is 0x0000 ~ 0x01F4.
0x30	Query CAN destination address	B3B4 =0x0000
0x3E	Query current channel position	B3B4 =0x0000
0x3F	Query current firmware version	B3=0x01 B4=0x1E，as an example, indicate that the version is V1.30. See the version No. on the label for details.
0x4A	Query motor status	B3B4 =0x0000
0x66	Query piston position	B3B4=0x0000 After the pump finished running, we can use commands to query the current position of the motor, which displays the current distance between the motor &the home position (number of steps).
0x67	Synchronize piston position	B3B4 =0x0000 When the syringe pump is suddenly powered off during operation, the pump will continue to run for a short period of time, at which time the number of steps will be out of wrong, the number of steps to reach the reset position is not the home position when the power is turned on again. At this time, we need to run the position reset command 0x67, and then send 0x66 command to query current position, it means current position is the home position when B3=0x00 B4=0x00 received.
0x70	Query multicast channel 1 address	B3B4 =0x0000
0x71	Query multicast channel 2 address	B3B4 =0x0000
0x72	Query multicast channel 3 address	B3B4 =0x0000
0x73	Query multicast channel 4 address	B3B4 =0x0000

B：Device control command (“operation command”) (B2～B4)

Command B2	Specification	Parameters B3、B4	Response Parameters B3、B4
0x42	Run in CW (clockwise)	Operating parameters	The value of B3&B4 ≥0. When the number of steps corresponding to the B3&B4 parameter is greater than the maximum stroke

			steps, the motor will not run, and B3=02, B4=00 will return; when the number of steps is less than the Max. stroke steps, the devices will rotate according to the set steps
0x4D	Run in CCW (counterclockwise)	Operating parameters	The value of B3&B4 ⩾0. When the number of steps corresponding to the parameter B3&B4 is greater than the maximum number of stroke steps, the motor will not run and return B3=02, B4=00; when the number of steps corresponding to the parameter B3&B4 is less than the maximum number of stroke steps, the motor will follow the set number of steps.
0x45	Reset	0x0000	B3B4 =0x0000 The action of reset after power on is the same as 0x4F result. The reset will go directly to the home position on other cases. Note: 0x45 reset command, the speed of the first reset on power up defaults to 0x07 (the maximum speed set) and does not recognise the speed set by 0x4B (dynamic speed). To change the 0x45 reset speed, run 0x43 action once to recognize the dynamic speed set by 0x4B.
0x4F	Forced to reset	0x0000	B3B4 =0x0000 When the syringe runs to the home position, the number of locked-rotor steps runs to the top through resetting which causes forced resetting. Then the piston will go back for a certain number of offset steps, leaving a little gap between the top of the piston and the syringe which greatly improve the service life of the piston seal. Note: command 0x4F forces a reset and does not recognise the dynamic speed set by 0x4B.
0x4B	Set dynamic speed (It will fail when power-off, and if not set, it will be the default speed.)	Operating parameters	The maximum speed of 3ml is 600rpm（0x0001 ~ 0x0258）. The maximum speed of 8ml is 300rpm（0x0001 ~ 0x012C）.
0x4E	Syringe to the absolute position	Operating parameters	The absolute position of 3ml is 3600(0 ~ E10). The absolute position of 8ml is 3840(0 ~ F00).
0x49	Forced to stop	0x0000	B3B4 =0x0000

Status list

Status（B2）	Description of the response frame (B2) status
0x00	Normal status
0x01	Frame error
0x02	Parameter error
0x03	Optocoupler error

0x04	Motor busy
0x05	Motor stall
0x06	Unknown location
0x07	Command rejected
0x08	Illegal location
0xFE	Task pending
0xFF	Unknown error

Note: The code B2 in the response command indicates the current running status of the motor, only when B2=0x00, the motor runs normally, and the other parameters are as shown in the above table, which means different abnormal status respectively. In principle, the 0X4A command should be sent to query the motor status when the motor finishes operation. Only when the B2=0x00, other commands can be sent and execute correctly.

Caution: In 485 communication, when sending an action command, the B2 byte in the response frame is FE, indicating that the command is received and is being executed.

4.3.1.2 Factory command format (send 14 bytes, return 8 bytes)

Factory commands need to be used with V0.8 debugging tools when RS232 or RS485 are used separately. See 《Quick Use Guide》in detail.

Byte send:

B0	B1	B2	B3,B4 B5,B6	B7	B8	B9	B10	B11	B12	B13
FH (frame header)	Address code	Function code	Pass word	Function Parameter				EOF (End of frame)	CUCUM (Cumulative sum)	
STX	ADDR	FUNC	PWD	1-8 bit	9-16 bit	17-24 bit	25-32 bit	ETX	Low byte	High byte

The 1st byte STX : Frame header （0xCC）

The 2nd byte ADDR :Slave address（0x00 ~ 0x7F）

Multicast address（0x80 ~ 0xFE）Broadcast address（0XFF）

The 3rd byte FUNC :Function code

The 4th -7thbyte : Factory command format

The 8th -11thbyte : Parameters corresponding to the function code

The 12th byte ETX :End of frame（0xDD）

The 13th, 14thbyte :Cumulative sum check code from byte 1 to 12

Byte return:

B0	B1	B2	B3	B4	B5	B6	B7
FH (frame header)	Address code	Status code	Status Parameter		EOF (End of frame)	CUCUM (Cumulative sum)	
STX	ADDR	STATUS	1-8 Bit	9-16 Bit	ETX	Low byte	High byte

The 1st byte STX : Frame header (0xCC)

The 2nd byte ADDR : Slave address (0x00 ~ 0x7F)

Multicast address (0x80 ~ 0xFE) Broadcast address (0xFF)

The 3rd byte FUNC : Function code

The 4th-5thbyte : Parameters corresponding to the function code

The 6th byte ETX : End of frame (0xDD)

The 7th, 8thbyte : Cumulative sum check code from byte 1 to 6

C：Device interior parameter command setting ("Factory command")

Command B2	Abbreviation	Password B3 B4 B5 B6	Parameter Specification B7 B8 B9 B10
0x00	Set device address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX (B8=0x00 B9=0x00 B10=0x00) The value range of XX is 00 ~ 7F and the default is 00.
0x01	Set RS232 baud rate	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	Totally 5 baud rates, the factory default is 9600bps. B7=0x0000 9600bps B7=0x0001 19200bps B7=0x0002 38400bps B7=0x0003 57600bps
0x02	Set RS485 baud rate	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	

			B7=0x0004 115200bps
0x03	Set CAN baud rate	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	Totally 4 baud rates, the factory default is 100K. B7=0x0000 corresponding baud rate 100Kbps B7=0x0001 corresponding baud rate 200Kbps B7=0x0002 corresponding baud rate 500Kbps B7=0x0003 corresponding baud rate 1Mbps
0x05	Set subdivision	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	Totally 5 subdivisions: the factory default is subdivision 8. B7=0x0001 subdivision 2 B7=0x0002 subdivision 4 B7=0x0003 subdivision 8 B7=0x0004 subdivision 16 B7=0x0005 subdivision 32
0x07	Set maximum speed	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX(B8=0x00 B9=0x00 B10=0x00) The value range of XX is 0x01 ~ 0x258 and the default is 12C.
0x0E	Set automatic reset after power on	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B3B4=0x0000 do not automatically reset after power-on. B3B4=0x0001 automatically reset after power-on.
0x10	Set CAN destination address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX(B8=0x00 B9=0x00 B10=0x00) The value range of XX is 00 ~ FF and the default is 00.
0x50	Set the multicast channel 1 address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX (B8=0x00 B9=0x00 B10=0x00) The value range of XX is 80 ~ FE and the default value is 00.
0x51	Set the multicast channel 2 address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX (B8=0x00 B9=0x00 B10=0x00) The value range of XX is 80 ~ FE and the default value is 00.
0x52	Set the multicast channel 3 address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX (B8=0x00 B9=0x00 B10=0x00) The value range of XX is 80 ~ FE and the default value is 00.
0x53	Set the multicast channel 4 address	B3=0xFF B4=0xEE B5=0xBB B6=0xAA	B7=0xXX (B8=0x00 B9=0x00 B10=0x00) The value range of XX is 80 ~ FE and the default value is 00.

Example: Use the 0x50/51/52/53 command to set the multicast address (this example only uses the three commands 0x50/51/52)

Use three sets SY-09 syringe pumps with the same software version. In the RS485 communication mode, set their addresses to 00, 01, 02 and make a mark. Firstly, Set parameter 0x81 of SY-09 multicast channel 1 address marked as 00 to 81 by the command 0x50, set parameter 0x83 of multicast channel 3 address to 83 by command 0x52; Set parameter 0x81 of the multicast channel 1 address of SY-09 marked as 01 to 81 by command 0x50, and the parameter 0x82 of multicast channel 2 address is set to 82 by command 0x51. Set parameter 0x82 of the multicast channel 2 address of SY-09 marked as 02 to 82 by command 0x51, and the parameter 0x83 of multicast channel 3 address to 83 by command 0x52 (See the table below for details).

Device	Device 1	Device 2	Device 3

Items	(Address 0)	(Address 1)	(Address 2)
Multicast address	81	81	
		82	82
	83		83
Broadcast address	FF	FF	FF

After the setting is completed, connect the three devices in parallel to the serial port debugging tool, and use our debugging tool MotorTest V0.8 for debugging. In MotorTest V0.8, set the address to 0x81, the command to 0x4D and the parameter to 0xC8, click to send and then the pistons of device 1 and device 2 will have pumping action; Set the address to 0x82 ,the command to 0x4D and the parameter to 0xC8, click to send and then the pistons of device 2 and device 3 will have pumping action; Set the address to 0x83, the command to 0x4D and the parameter to 0xC8, click send and then the pistons of device 1 and device 3 will have pumping action; Set the address to 0xFF, the command to 0x4D, and the parameter to 0xC8 , click to send and then the pistons 1, 2, and 3 will all have pumping action.

The newly added command to set the multicast address meets the needs of customer groups to a great extent and makes it easier for customers to selects the equipment that you want to control, and can complete the work requirements more efficiently and quickly during use.

Note:

All the parameters of all the above commands are set in little-endian mode. In little-endian mode storage, the low bit of data is stored in the low bit of the address, and the high bit of data is stored in the high bit of the address.

Chapter 5 Common Problems & Solutions

Item	Fault	Reason	Troubleshooting method
1	Not working when powered on	The working voltage is not in the acceptable range.	Check whether the actual voltage deviates from the rated voltage.
		The connection is loose or disconnected.	Manually check whether the connection is good, or check the line with a multimeter.
2	Unable to aspirate or	The pipe system is not tightly sealed.	Check whether the joint is tight.

	aspirate properly	The aspirating pipe is blocked.	Clean and dredge the pipe.
		The aspirating valve or the dispensing valve is blocked by debris.	Clear the debris.
3	Bubbles	Air leakage in aspirating pipe.	Find the leak and eliminate it.
		The inlet and outlet pipe joints are not tightly sealed.	Replace the gasket and tighten the pipe joint.
		Gasket broken	Replace the gasket.
		Excessive fluid pipe diameter variation	The diameter of the fluid path should be as consistent as possible.
4	Pump stuck	Optocoupler is not triggered.	Check the optocoupler wiring (refer to the optocoupler wiring method).
		Optocoupler is burned out.	Replace optocoupler.
		Reverse connection of motor wires.	Switch any phase of the motor wires.
5	Motor overheated	Drive voltage is too large.	Adjust voltage
		Drive current is too large.	Adjust current
		Holding current is too large.	Holding current ⩽50% of rated current
6	Abnormal sound of pump operation	Motor running speed is too high or too low.	Adjust the motor speed to a suitable value.
		There are crystals in the pump head.	Cleaning steps are required after the machine runs or before it starts.
7	Poor sampling accuracy	The pipe system is not tightly sealed.	Check whether the joint is tight.
		There are bubbles in the pipe.	Refer to troubleshooting method of above point 3.

Product Safety Precautions:

1. Please ensure that the voltage matches with the standard voltage of the instrument.

2. Please use the original serial cable of this product to connect to the power supply.

3. The three communication methods (RS232, RS485, CAN bus) of this product are in non-isolated mode.

4. Do not disassemble the product parts at will. No warranty for tamper-evident label tearing.

5. When operating the software, please refer to the operating instructions of the software and the communication protocol, and data input is not allowed to be fabricated without authorization.

6. Discarding the instrument should be in accordance with the regulations on the disposal of equipment. For the waste after using the machine, please follow the national environmental protection requirements. Users should not throw away at will.

7. When using CAN protocol to connect multiple devices, please refer to the connection method shown in Figure 3-1 below.。

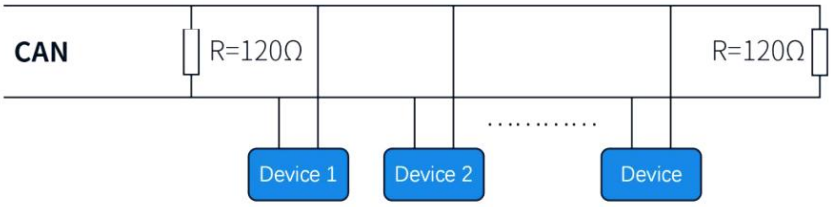


Figure 3-1

8. When using RS485 protocol to connect multiple devices, please refer to the connection method in Figure 3-2 below, but the resistance value needs to be determined according to the number of devices connected by the user.

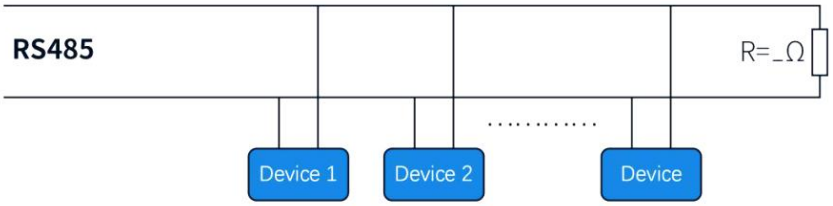


Figure 3-2

9. SY09 has two protocols, RUNZE and ASCII protocol. If you need to switch protocols, you can refer to the following steps (both need to be powered off after switching)

9.1 Burn-in Protocol

9.1.1 If the default programmed command is the ASC II command, it will query the following return code

Send→ 91 EB 07 00 00 00 00 00 00 D5 28 FF F8

Receive← 91 EB 0A 01 00 02 C4 47 0B 00

0A parameter definition: 0A stands for ASC II

9.1.2 If the default programmed command is the RUNZE command, it will query the following return code

Send→ 91 EB 07 00 00 00 00 00 00 D5 28 FF F8

Receive← 91 EB 02 01 00 63 D7 F6 AB 00

02 parameter definition: 02 stands for RUZNE

9.2 Switching protocol (must use RS232 port to switch the address, and must be powered off after switching)

9.2.1 If RUNZE command is required, the following code can be used to switch the address

Set the address to 0x0802 (RUNZE)

Send→ 91 EB 03 00 00 02 08 00 00 0C 0A 69 69

Receive← 91 EB 00 01 00 0D 5A 8A 40 00

The values queried after the setting are as follows.

Send→ 91 EB 07 00 00 00 00 00 00 D5 28 FF F8

Receive← 91 EB 02 01 00 63 D7 F6 AB 00

9.2.2 If ASC II command is required, the following code can be used to switch the address

Send→ 91 EB 03 00 00 0A 08 00 00 6D 19 D8 C9

Receive← 91 EB 00 01 00 0D 5A 8A 40 00

The values queried after the setting are as follows.

Send→ 91 EB 07 00 00 00 00 00 00 D5 28 FF F8

Receive← 91 EB 0A 01 00 02 C4 47 0B 00

Chapter 6 Version Description

Version	Description	Release Date
V1.0	Initial Version	2020.12.20
V1.4	1. Add 0x45/0x4F description 2. Add version description 3. Change contact information	2022.6.28
V1.5	Add product features Special note for adding 0x4F	2022.8.18
V1.6	Replace the matching drive and become an integrated one	2022.11.11

	Remove CAN communication	
V1.7	Change size and weight, increase back pressure curve	2023.5.18
V1.8	Modify the command to query the syringe pump	2024.4.2

Chapter7 Technical Services

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Shop	https://runzeliuti.en.alibaba.com
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