Precision-24 Manual & Specification

CLEAN WATER SYSTEMS

Custom Systems for Water Purification

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1 Product Introduction

1.1 Product Overview

Precision 24 JLM electronic metering pump is an electromagnetic diaphragm pump under the control of microprocessor. The flow is controlled by adjusting the length of the stroke or the pulse frequency. It is used for transmitting liquid, including mordant liquid.

The diaphragm reciprocates in the pump head with the force of the electromagnetic, causing the change of the volume and pressure, which make the check valves open and close automatically. Thus the liquid is sucked and discharged.

The rated output volume of this electronic diaphragm metering pump is 1-15 l/h, and its corresponding maximum discharging pressure is 10bar. The flow could be controlled by adjusting the length of the stroke or the pulse frequency. The stroke length adjustment extent is 20%-100%.The LED displays the state of the pulse frequency in percentage.

1.2 Technical Parameter

1.2.1 General Parameter

Metering Precision：**± 2% in stable condition and the stroke length > 30% .**

Allowable Ambient Temperature： **－10℃ ~ ＋45℃**

Power： **AC 220V or AC110V±10%**

Frequency： **50Hz ~ 60Hz**

Input Power ：

Stroke Frequency	Rated Output
120stroke/min	**20W**
180stroke/min	**28W**

Insulation Degree： **F**

Outer Connection Control： Stroke Signal

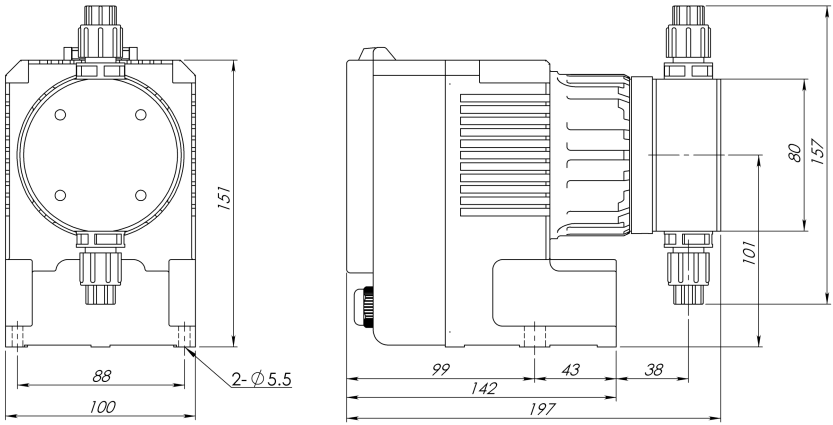
Pulse Width：**20ms**

Connection Load：**5V，0.5mA**

1.2.2 Performance Parameter

	Flow L/H	Pressure Bar	Stroke Control %	Pulse frequency Stroke/min	Caliber mm
	3.8	7.6	20-100	0~180	5

1.2.3 Installation Dimension



1.3 Operation Ins

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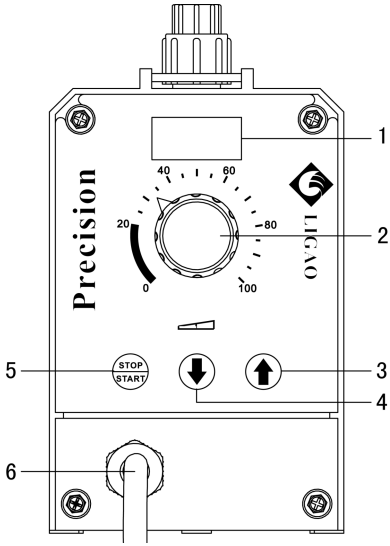


1.Displaying the frequency

2. Stroke adjusting knob

3.Increasing the frequency

4.Reducing the frequency

5. Stop/Sart

6.power cable

- While the first digital shows “P”, it is power on;
- While the first digital is off, it is power off
- The last three digitals show the state of the frequency.
- While the last three digitals are off, the pump stops working.
- Mark 2 on the picture is the stroke knob for adjusting the stroke length. The best adjusting range is 30% ~ 100% 。

Mark 3 and mark 4 on the picture are buttons for adjusting the frequency(in percentage).

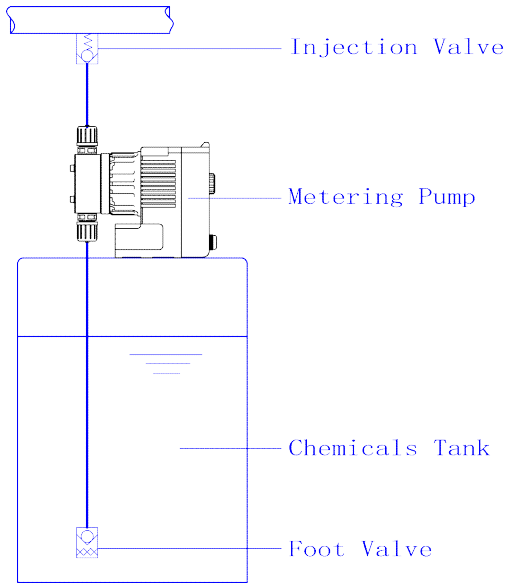
Long press the button, the frequency will increase or reduce 10% per time;
Quick press the button, the frequency increase or reduce 1% per time.

2 Installation

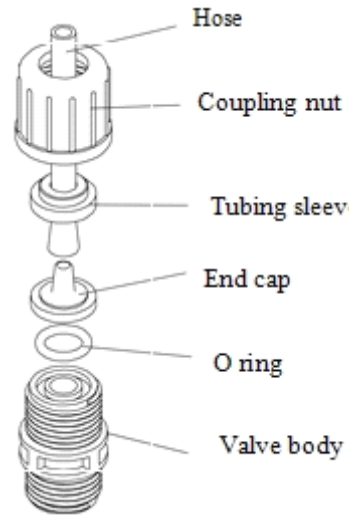
- If the pumped solution can not be mixed with water, the pump should be cleaned before use, as some water might be remained when the pump was tested at factory. Turn over the pump head and get rid of water, then use suitable medium to clean the wetted part of the pump head.
- The installation place should be convenient for workers to operate and maintain. Any obstruction should be moved away from working area.
- If stop valve is equipped at the outlet of the metering pump. When the stop valve is closed, the counter pressure may be several times than the maximum pressure allowed, which may rupture the pipe or cause the pump being damaged. To avoid such accidents, a relief valve is suggested to be installed.
- Use the right tubing sleeve, right end cap and tube to ensure the connector being stable and endurable.

2.1 Installation

- Tighten the screws to fix the pump.
- The inlet and outlet must be installed vertically.
- The inlet tubes should not be too long, and make the foot valve 10-30mm above the bottom of the tank (it can be 50mm if the liquid is with heavier dirt)
- Install the outlet tubes and injection valve. Back pressure valve should also be installed if it is open discharging.



2.2 Tube connection



- Put the coupling nut on the hose.
- Cut the hose at suitable length, and insert on the end cap as deep as possible.
- Enlarge the diameter of the hose a little if needed.
- Press the tubing sleeve and tighten the coupling nut

2.3 Power connection

- Make sure the voltage is consistent with the grade marked on the nameplate.
- Insert the plug to the right socket.

3 Operation and Setting

3.1 Start-up

- l Open all the control valves on the input and output tubes. Open the bypass valves for discharging air, if the pump is with injection valve or pressure regulating valve. Or loose the coupling nut to discharge the air.
- l Start the pump, to check whether the liquid is out from the outlet tube or the bypass valve.
- l Close the bypass valve when the pump works normally.

3.2 Setting

- Adjust strok knob ② to adjust the stoke length.
- Adjust the frequency button ③④ to control stoke frequency(in percentage).

It is suggested adjust the flow by the frequency. The stroke length is for slight adjustment after frequency setting.

3.3 Signal Function Setting for JLM-A & JLM-P

- When the pump is stop(display P on the panel), press “stop/start” key will start the pump. Long press this key will go to parameter setting. When the pump is on, press “stop/start” key will stop the pump.
- Parameter setting:
  Long press “stop/start” key to run into the parameter setting as following:
  0: Set the max stroke value per minute;
  1: Minimum pulses per minute(can not be changed);
  2: No function; Please ignore it;
  3: No function; Please ignore it;
  4: No function; Please ignore it;
  5: “0 “for manual operation; “1” for pulse function (Multiplier); “2” for pulse function(Divider); “3” for remote control; “4” for 4-20mA function; “5” no fucntion;
  6: Pulse fucntion rate setting(scope from 1-255): Setting the valve at N, If it is under pulse multiplier function, the pump will run N strokes by receiving 1pulse; If it is under pulse divider function, the pump will run 1 stroke by receiving N pulses;
  7: No function; Please ignore it;
  8: Show 4-20mA input value.
- Wire connection:
  1 for common line (black)

2 for 4-20mA signal input(white)

3 for pulse signal input(green)

4 for remote control (red)

4 Maintenance and Repair

Warning

- Electric maintenance must be carried out by qualified electrician.
- Before maintenance, please unplug the power socket or cut off the power. If there is relay, it should be cut off. Make sure there is no power during maintenance.
- During maintenance, please release the pressure in the tubes first, and clean the pump head. Don't use corrosive liquids.
- If medium is dangerous liquid, please check the performance parameters of the medium. Discharge and wash the pump head before maintenance.

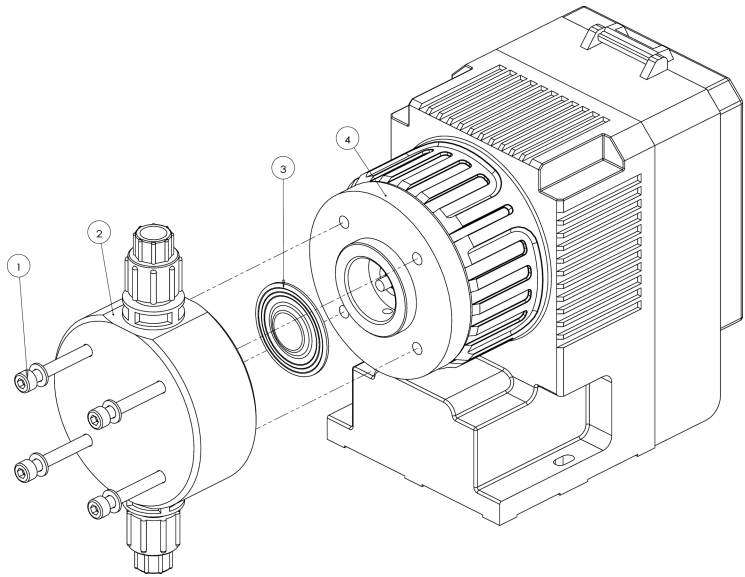
4.1 Maintenance

Strictly check the following items when maintenance.

- Pump head bolts (make sure it is firmly connected)
- Inlet and outlet tubes(make sure it is firmly connected)
- Pump head and valves(make sure it is firmly connected)

- Leakage hole on the adapter base (the diaphragm may be broken if there is leakage liquid.)

4.2 Diaphragm Replacement



- Adjust stroke length to 0% when the pump is working;
- Cut off the power, loosen the bolts ①;
- Pull out the pump head ② and bolts ① from pump body;
- Counter clockwise turning the diaphragm ③ and turn it off;
- Take off the adapter base④
- Screw on a new diaphragm ③ at clockwise as tight as possible;

- Put back the adapter base ④ with the drain hole oriented downward.
- Remount the pump head back. Take care of the direction of inlet and outlet check valves.

Warnings

Leakage hole on the adapter base must be downward.

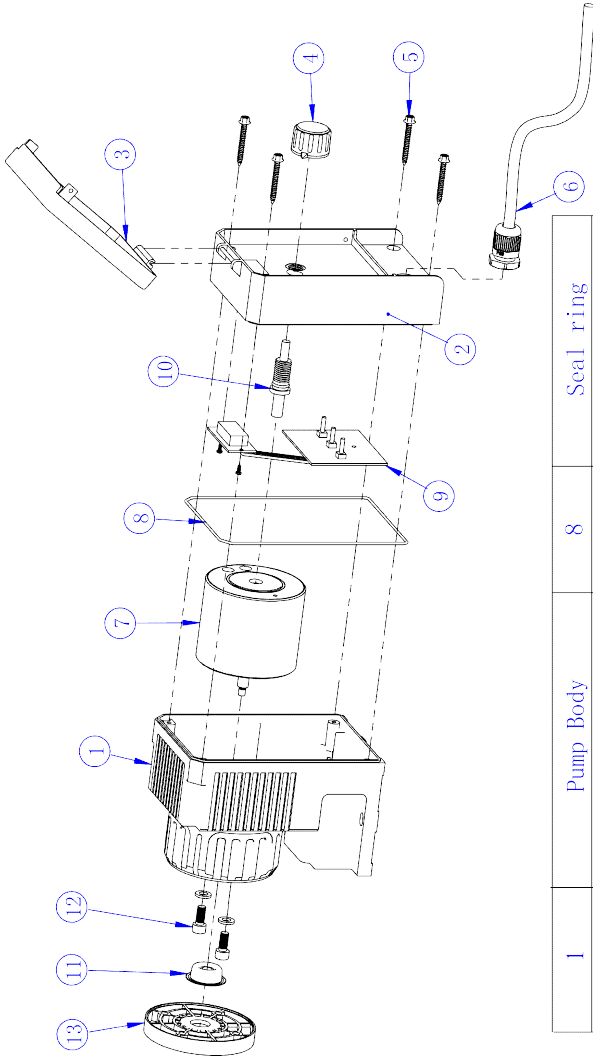
Recheck the screws on th pump head, tighten them if necessary.

5 Troubleshooting

Problem	Possible Cause	Solution
Pump can not start	power failure	Check the power supply
	The fuse blowouts	Change fuse
	Circuit is interrupted.	Find the off position
	Wrong connecting wire	Recheck the diagram
	Pipe blockage	Open the valve, and clean it
No Flow	Not work	Check the power
	Offering tank is empty	Fill the tank
	Pipe blockage	Clean the pipe
	Valve is closed	Open the valve
	Granule block off check valve	Check the valve and clean it
	Air in the pipe	Release the air
	Cavitations	Increase the pressure of suction and shorten the suction pipe.
	Problem of priming	Re-priming, checking leakage
	Filter is blocked	Disassemble the filter; clean or change it.
	Adjust the stroke to zero.	Increase stroke length.
Low flow	Valve broken or serious dirty.	Clean the valve or clean it.

	Calibration system is wrong	Evaluate and correct it
	Medium viscosity is too high	Improve temperature of product or lower the viscosity. Increase the size of pump and pipeline.
	Medium cavitations	Increase the pressure of suction, and shorten the suction pipe.
Flow becomes lower gradually	Check valve leakage	Clean or change the valve
	Suction pipe leakage	Find the leakage position and solute the problem.
	Filter is blocked	Disassemble the filter; clean or change it.
	Medium is changed	Check the viscosity and other parameters
	Blowhole of the offering tank is blocked	Open the blowhole
Flow is unstable	Suction piping leakage	Find the leakage position and solute the problem.
	Medium cavitations	Increase the pressure of suction and shorten the suction pipe.
	Check valve is blocked	Clean or change it

6 Main parts



1	Pump Body	8	Seal ring		
2	Rear end plate	9	Integrated circuit		
3	Protective cover	10	Adjusting Screw		
4	Stroke adjusting Knob	11	Safety diaphragm		
5	Tapping Screw	12	Hexagonal Screw		
6	Feed Cable	13	Adapter Base		
7	Electro magnet				