

1. INTRODUCTION

The Peristaltic Pumps **RH-P110S-xx** is a single channel pump for the use in laboratory and extensively in industrial applications where accurate flow rate is essential. Pumping action is done by a roller cage driven by stepper motor. The motor and internal are almost independent of temperature. This pump has load and line compensation circuit. The rollers are made up of carbon filled nylon for trouble free operation. The electronic circuit provides constant flow rate even there is line voltage or load variation.

2. CHECK LIST



Items included in the packing

1. Peristaltic Pump model **RH-P110S-xx** - 1 No.
2. 230v,4 A Power chord with 3 pin plug - 1 No
3. Tubing - 1 Mtr
4. Spare Fuses (1 Amps) - 2 No's

3. GENERAL DESCRIPTION

3.1 Front Panel

a. ON/OFF Rocker Switch

This switch is used to **ON/OFF** the A.C. Supply to the pump with built in indication.

b. ON/OFF Toggle Switch

This switch is used to ON/OFF the pump. The ON position is indicated by a glowing LED.

c. Prime

By keeping this switch in pressed condition the pump can be run at its Maximum RPM. This switch will work only when the pump is in OFF condition

d. Two digit Thumbwheel Switch

This switch is used to set the speed (RPM) of the Pump. The settings can be 0 to 99

e. CW/CCW

This switch is used to change the pumping direction either Clockwise or Anti clockwise

3.2 REAR PANEL

a. A.C.Main socket

This socket accepts the supply of A.C.230v, 50Hz. Suitable power chord is provided with the pump.

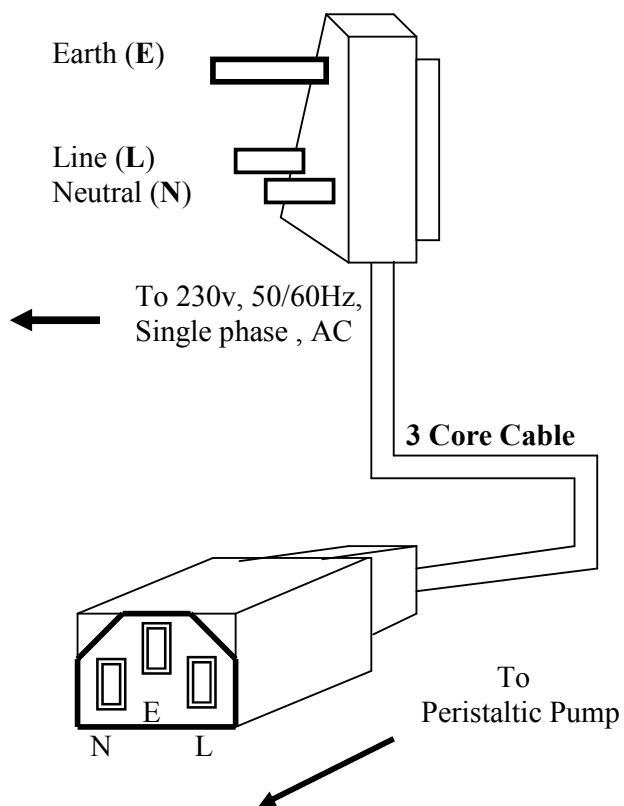
b.Fuse

Protects the electronics and the motor in case of short circuiting. The fuse rating is 1 Amps.

4. OPERATION



Ensure Proper Earth for the Pump



4.1. Loading the tube.

Fitting the tube in the roller cage is a straight forward procedure requiring no specialised knowledge or expertise.



Step - 1



Step - 2



Step - 3

1. Mark 170mm in the tubing. Ensure the marks should be present in the outside of the tube holders (top and bottom) after tube loading

2. Pull back the tube holding lever in the suction side, insert the tube and release the lever.

2. Rotate the roller cage in the clockwise direction so that the tube is automatically in its path.

3. Fit the tube in the delivery side of the tube holding mechanism as described in suction side.

4. Start the motor and confirm the smooth rotation of the rollers over the tube.

NOTE: The rollers are set for 1.5 mm wall thickness tubes. If 1 mm wall thickness tube has to be used, Loosen the screws provided in the sides of both the roller holding plates uniformly by using the screw driver. Loosen the screws until required pumping pressure is achieved.

4.2. SETTING THE FLOW RATE

The flow rate can be varied by changing the RPM using the Digital thumbwheel switch. The actual RPM will be equal to the thumbwheel settings divided by the Division factor. The approximate flow rate can be selected by using the output per revolution given below for various tubes.

The approximate output/rev.:

1 mm I.D. - 0.2ml
2 mm I.D. - 0.5ml
3 mm I.D. - 1 ml

Model No.	Division Factor
RH-P110S-01	100
RH-P110S-10	10
RH-P110S-25	4
RH-P110S-50	2

The approximate RPM for the required flow rate can be calculated as follows.

$$\text{RPM} = \frac{\text{Flow rate(ml/min)}}{\text{ml/Rev.}}$$

Example

- a. For a flow rate of **42 ml/hr**
in **3 mm I.D.** tubing, in RH-P110S-10 model

$$\text{The Reqd. RPM} = \frac{42/60}{1.0} = 0.7$$

$$\text{The thumb wheel settings} = 07$$

- b. For a flow rate of **420 ml/hr**
in 3mm I.D.tubing, in RH-P110S-10 model

$$\text{The Reqd. RPM} = \frac{420/60}{1.0} = 7.0$$

$$\text{The thumb wheel settings} = 70$$

The exact quantity of the flow with respect to the RPM has to be measured at the actual environment. Using this output calculate the exact output per revolution and use this calibrated value for further settings.

5. MAINTENANCE

The Peristaltic Pump **RH-P110S-xx** does not require any regular service or maintenance other than replacement of worn-out tubing.

It is advisable to replace the tubing after 300 to 500 Hours depending upon the environment ,to minimise the risk of tubing breakage during operation.

6.LUBRICATION

No lubrication is required as the internal mechanisms are lubricated for life. Lightly lubricate the rollers whenever it is necessary. External lubrication of tubing is recommended for longer life of the tube. Silicon grease(midland silicon MS4 or equivalent)can be used with advantage on all materials except silicon rubber. Glycerin and other non-solvent lubricants can be applied to silicone rubber and other elastomers.

7. TECHNICAL SPECIFICATIONS

No.of channel : ONE

Model No.	RPM
RH-P110S-01	0.01 to 0.99
RH-P110S-10	0.1 to 9.9
RH-P110S-25	0.25 to 24.75
RH-P110S-50	0.5 to 49.5

Model No.	Flow Rate
RH-P110S-01	0.12 to 60 ml/hr
RH-P110S-10	1.2 to 600 ml/hr
RH-P110S-25	3 to 1500 ml/hr
RH-P110S-50	6 to 3000 ml/hr

Tubing : 1mm to 3mm I.D.
(with 1 or 1.5mm wall thickness)

Pressure : Up to 2 Kg/Sq.cm

Supply : 230v, 50Hz, A.C.

Motor : DC stepper motor

Temp.range : 0 to 50 deg.C

Dimension : 125 x 225 x 290 mm
(H x W x D)

Weight : 7 Kgs.(Approx.)

RH/UM/110S/001 Rev.00 20/11/06

PERISTALTIC PUMP
MODEL RH-P110S-01/10/25/50

USER'S MANUAL

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