



MICROSYRINGE PUMP (ESP-32) User's Guide

Warning: Do not use this syringe pump on humans or **non-laboratory** animals. **It may only be used for** laboratory animals for the purpose of basic scientific research.

Eicom Corporation

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Introduction

Thank you for purchasing the Eicom Microsyringe Pump ESP-32.

For your safety, please read this instruction manual before use until you completely understand the pumps operating procedures.

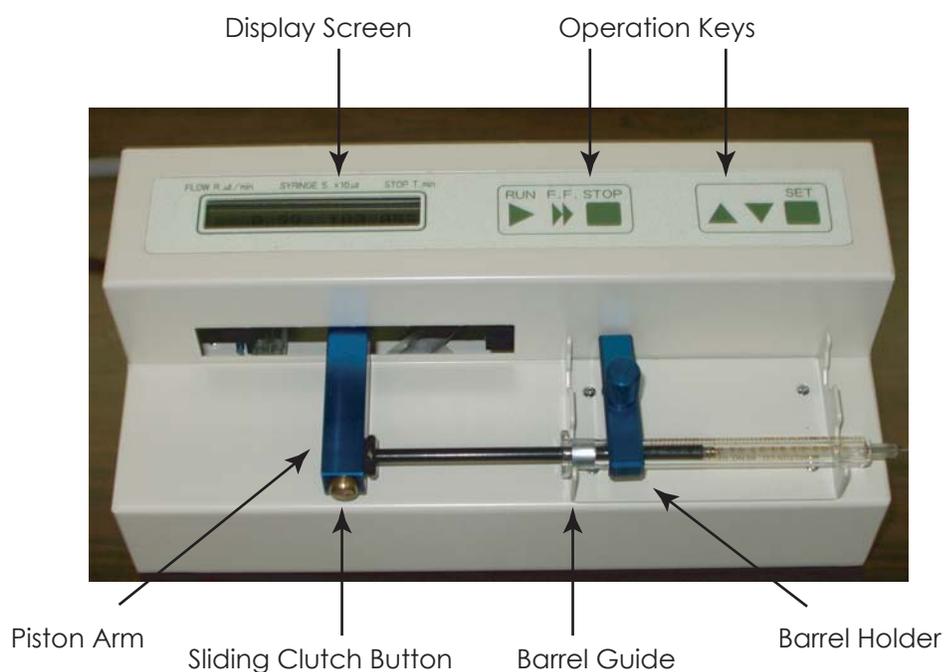
To prevent accidents, you are advised to strictly follow these points:

1. Only operate the ESP-32 pump after reading and completely understanding this instruction manual.
2. Only use the ESP-32 pump for basic research purposes. Do not use it for humans or animals, except for laboratory animals.
3. Follow all warnings and cautions.
4. Do not alter the ESP-32 pump in any way.
5. Do not unscrew or remove any screws on the ESP-32 pump.

Purpose of Use

Precise flow control is crucial for microdialysis and microinjection studies. The microsyringe pump (model ESP-32) has a pulsed, motor-driven sliding bar to push, at maximum, two syringe pistons. Do not use the ESP-32 pump for clinical applications.

Parts Name



The power on/off switch is located on the back panel.

Numbers appear on the liquid crystal display (LCD) screen by turning on the power switch.

Operation

1. Plug in the power outlet (in the range of 80–240 V) and turn on the power switch.
2. Select and set the syringe size. To do this, press the SET key twice. A screen appears with "SYRINGE S. × 10 µl" displayed. The number appearing on the screen is 1/10 the volume of the actual setting. Choose the appropriate size by pressing the up or down arrow keys. Then press the SET key to save your input.
3. Select the time after which you want the pump to stop. Select zero if you want a continuous flow. The ESP-32 pump has a limiter to stop the piston arm before the piston breaks the syringe (an appropriate syringe setting is required to use this function, see step 6). For this reason, selecting zero does not result in your syringes becoming broken. To save the time press the SET key.
4. Set the flow rate using the up and down arrow keys and save your input by pressing the SET key.
5. Slide the piston arm by pressing the sliding clutch button on the arm.
6. Fill the syringe(s) with 110% of the total pumping volume of the desired solution and remove any air bubbles from the syringe(s). For example, if the total pumping volume is 100 µl, load more than 110 µl of the solution into the syringe.
7. Set the syringe(s) up on the ESP-32 pump. The barrel holder can be lifted up by pulling the pin on the holder. Set the syringe(s) so that the bottom of the barrel fits into the barrel guide as shown in the picture above. Place the barrel holder back down on the syringe. Make sure that the syringe(s) is secure so that it does not slide or move when the piston moves.
8. Make sure that the piston arm is completely pressed up against the piston by pressing the F.F. key and confirm that liquid flows out of the syringe. Then press the STOP key to stop the flow.
9. Now, if required, connect the tubing to the syringe needle. Please hold the needle using your other hand to prevent the syringe sliding back when you insert the tubing to the needle. We recommend using Eicom Teflon Joint Tubing (JT-10) or FEP Joint Tubing (JF-10).
10. Press the RUN key to start the pump.
11. Press the STOP key to stop the pump.

Specifications

Setting the injection volume: Direct setting on a liquid crystal display (LCD) screen.

Syringe size allowance: Select 10–20–50–100–250–500 μl or 1–2.5–5ml
(Always use a Hamilton Gastight Syringe)

Syringe: 2-syringe carriage

Flow rate ranges:

Size of Gastight Syringes	Flow rate range
10, 25 or 50 μl	0.0001 ~ 0.9999 $\mu\text{l}/\text{min}$
100, 250 or 500 μl	0.001 ~ 9.999 $\mu\text{l}/\text{min}$
1, 2.5 or 5 ml	0.01 ~ 99.99 $\mu\text{l}/\text{min}$

Stop timer setting range: 1 ~ 999 min (1min step)

Flow rate accuracy: less than ± 1

Size: W 226 \times D 100 \times H 90 (mm)

Weight: approx. 2 kg

Power supply: AC 80-240, VA 50/60 Hz

General Warnings for Operation

1. Do not use the ESP-32 pump for human applications.
2. If the numerical value you input is rejected while setting the running parameters, it may be out of the setting capacity range. Please input a different value or turn the power off once and try setting the pump up again from the beginning.
3. When you slide the piston arm, please press the sliding clutch button firmly. If it makes a sound like "ghee", it may result in the cogwheel wearing out.
4. Never soak the ESP-32 pump or wet any part of it.
5. Avoid putting small objects such as vials or your finger in the side window of the ESP-32 pump.
6. Please turn off the power when you are not using the ESP-32 pump.
7. Please avoid placing the ESP-32 pump in a humid place.

Remarks

The ESP-32 pump can be controlled from a personal computer via an interface called RS-232C. For a detailed protocol of the RS-232C communication, please contact Eicom at info@eicom.co.jp

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