

# TARGET CONTROLLED INFUSION SYRINGE PUMP



## ESP-4000

(LED & Editable Program)



**A. Modes of operation:** Plasma TCI (Target controlled infusion), Effect Site TCI (Target controlled infusion), ml/h infusion mode, Constant flow rate infusion, Volume & Time infusion, ml/h infusion, TIVAI mode and intermittent infusion.

1) **Plasma target controlled Infusion** mode enables users to set the target plasma concentration.

2) **Effect site target Controlled Infusion** mode enables users to set the target effect site concentration.

**The pump delivers drugs to maintain the desired concentration according to the pharmacokinetic model. The Infusion rates are altered automatically.**

3) **ml/h infusion** mode: Usually use the ml/h as the infusion unit in clinical. Under this mode, it will display the infusion rate and the total volume in infusion process.

4) **Constant flow rate infusion** mode: It enables the users to control the infusion by setting the flow rate. There are seven flow rate units of available such as ml/h, mg/h, ug/h, mg/kg/h, mg/kg/min, ug/kg/h, ug/kg/min.

5) **TIVAI mode** (Total Intravenous Anesthesia Infusion Mode): enables the user to control the infusion by setting the capacity, the time need for the initial infusing capacity and the maintaining infusion rate. When the initial infusing is finished, the infusion rate will change to maintaining rate automatically.

6) **Volume & time infusion** mode: It enables the users to control the infusion by setting the desired volume and the desired time to be infused.

7) **Intermittent infusion mode:** It enables the user to control the infusion by setting the flow rate to be infused, volume to be infused per interval, intermitted time per interval, and KVO rate during intermitted time. It is fit for infusing the drugs which has long effect duration.

**B. Alarm and Warns:** when something abnormal occurs, the pump can give out audible alarm and warning information such as AC power failure, battery low, drug near empty, drug empty, occlusion, end of infusion, syringe disengaged, forget operation, infusion rate abnormal, motor abnormal, pushfit error etc.

## Technical Data

**Range of Flow rate:** 5ml syringe: 0.1~150ml  
 10ml syringe: 0.1~300ml/h;  
 20ml syringe: 0.1~600ml/h;  
 30ml syringe: 0.1~900ml/h;  
 50(60)ml syringe: 0.1~1200ml/h;

**Suitable Syringe:** all the syringe in the standard capacity set 5ml, 10ml, 20ml, 30ml, 50(60)ml can be used in the pump by custom syringe's setting.

**Volume of infusion:** 0.1~9999ml, in 0.1ml increments

**Bolus rate:** 100~1200ml/h can be set

**KVO (keep vein open):** 0.1~2.5ml/h can be set

**Accuracy:** Infusion accuracy is  $\pm 2\%$

### Pill Dosage and Occlusion Threshold:

Pressure level	Low 300 $\pm$ 100mmHg	Medium 500 $\pm$ 150mmHg	High 900 $\pm$ 200mmHg
Reaction Time	$\leq 10$ minutes	$\leq 20$ minutes	$\leq 35$ minutes
Pill Dose	$\leq 1$ ml	$\leq 1.5$ ml	$\leq 2.5$ ml

**Event log:** more than 500,000 records of operation

**Power supply:** AC: 100-245V, 50 $\pm$ 1Hz

**Battery:** 11.1V battery can use for more than 5 hours after charged for 10 hours

**Accessories:** USB, RS232, Connecting lead for staff call, Software package

### Operation condition:

**Safety standard:** Class IIb ( CE standard) complies with

EN60601-1-2:2001, EN60601-1:1990+A1:1993+A11:1993+A12:1993+A2:1995+ A13:1996;

EN60601-2-24:1998, ISO8536-8:2004

**Ambient Temperature:** +5 $^{\circ}$ C ~ +40 $^{\circ}$ C;

**Relative Humidity (RH):** 30 % ~ 75 %

**Atmospheric Pressure:** 860 ~ 1060hPa

**Dimension (mm):** 265(L) $\times$ 199(W) $\times$ 142(H)

**Weight:** 2.7kg



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