KDS EZFlow 2030
Portable Syringe Pump
User's Manual

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KDS EZFlow 2030

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Caution

IMPORTANT: User should read this entire manual before operating this portable Syringe pump. Keep this manual for your future refrence.

WARNINGS:

1) Critical! Do not use in the presence of flammable anesthetics!
2) Do not use pump, syringe, or accessory that shows any sign of damage.
3) Only authorized service personnel should repair this pump. Manufacturer assumes no responsibility for incidents that occur if the pump is not repaired according to manufacturer-authorized procedures.
4) Before connecting the syringe to the patient, user must prime the syringe and extension tube to prevent air to the patient.
5) Take the batteries out if this product is left unused for a period of time.
6) To clean the pump, use a damp (not wet) cloth or sponge. Do not immerse pump or power cable into water or other cleaning solutions.
7) To preserve our environment and conserve our natural resources, recycle batteries at the end of their useful life.



CAUTION
Refer to Manual



Protective Ground
Terminal

Application Fields

This Portable Syringe Pump is used to deliver medications from a disposable syringe size from 2 to 50/60 ml. This portable, user-friendly device offers a new alternative for a micro reliable infusion.

KDS EZFlow 2030

Specifications

Applicable Syringes	2ml - 50 / 60ml* disposable syringes
Linear Flow Rate	1 mm/hr - 99 mm/hr (linear rate)
Flow Rate (Converted based on syringe sizes)	50/60 ml syringes 0.7 up to 65 ml/hr 20ml syringes 0.35 up to 34 ml/hr 10 ml syringes 0.1 up to 16 ml/hr 5ml syringes 0.1 up to 11 ml/hr
Accuracy	less than ± 2 %
Alarms	Audible and Visual Alarms of "COMPLETE /OCCLUSION" and "LOW BATT"
Bolus Function	Easily adding 1/4 of preset dosage by bolus cable without interruption of current infusion. Minimum30 minutes interval for safety protection
Included Accessories	a) 3 x AA batteries b) 1 x BOLUS cable (PCA) c) 2 x Syringe protecting cover d) 1 x Carrying case
Power Supply	DC 4.5V (3 x AA batteries)
Battery life	30 days or minimum 50 syringes
Dimensions	W 166 × H 60 × D 30 mm (6.5"W × 2.4"H ×1.2"D)
Weight	180 g / 0.55 lb (240g with 3 AA batteries)

* Specified 50/60ml syringe required, fill up to 33ml

KDS EZFlow 2030

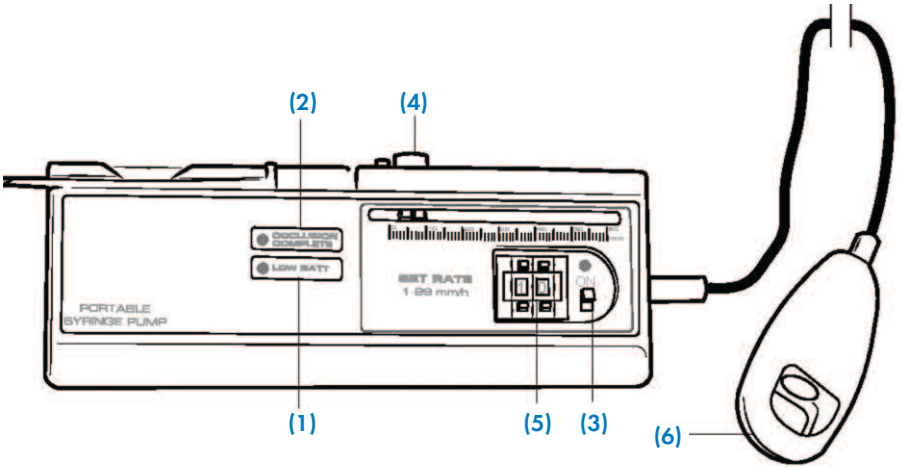
Operation Procedures:

1) Type of Protection Against Electric Shock: Type: BF

2) Degree of Protection Against Ingress of Fluids: Drip-Proof: IPX1

3) Exclamatory mark: CAUTION! Please refer to user's manual.

KEYPAD



1) **Low Battery Alarm**
2) **COMPLETE/OCCLUSION Alarm**
3) **ON/OFF Switch**
4) **Syringe Driver Head**
5) **Set Rate 1 - 99 mm/h**
6) **Bolus Cable (PCA)**

Operation Procedures: (Continued)

KEYPAD DESCRIPTION

	**SET TIME** - Activated only in STOP mode. When pressed, sets the desired time. `SET TIME' indicator should illuminate.
	**PURGE** - Only functions in STOP mode. When pressed, starts purging tubing set.
	**RUN/STOP** - Press to start or stop the pump. `MODE' indicator should illuminate.

ALARMS AND INDICATOR LIGHTS

	**NEAR END** - When there is approximately one minute of infusion time remaining, this indicator flashes and the alarm buzzer sounds. To silence the alarm, press the `RUN/STOP' button.
	**COMPLETE/OCCLUSION** - When infusion is complete, the indicator is illuminated in red and the alarm buzzer sounds. When the device senses an occlusion by not being able to drive with a force of 6.5kg ± 1 kg, the indicator is illuminated in red and the alarm buzzer sounds. To silence the alarm, press the `RUN/STOP' button.
	The battery indicator light (ornage) indicates the driver is using built-in battery power. this light and AC power light (green) will blink together if battery is low.
	AC power light (green) indicates the pump is connected to mains AC power and is charging the battery.

LOAD SYRINGE

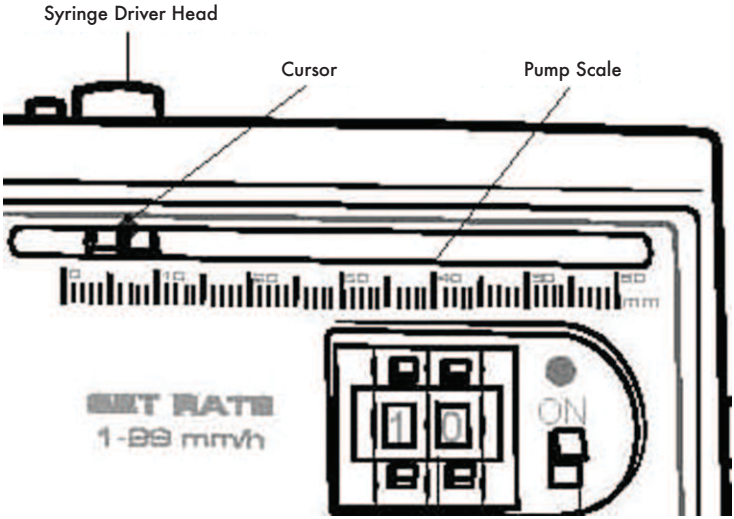
Fill the syringe with desired medication. Load the syringe onto the pump. (Refer to Figure 2). Place the syringe into the bed. Be sure to insert the nozzle into the syringe slot. Then press and hold the secure button on the driver to bring the driver block into such a position that the extremity of the syringe plunger can be placed into the driver slot. Fasten the rubber strip to secure the syringe.

Operation Procedures: (Continued)

SET INFUSION RATE – SIMPLIFIED METHOD (WITHOUT RULER)

To determine the infusion rate of the syringe without

1) Load the empty syringe on the pump as instruction (refer to previous page load syringe)
2) Note the reading of the pump's cursor location. (E.g. 6mm on the pump scale)
3) Move the syringe by holding the syringe driver head by 1 ml according to the reading on the syringe.
4) Note the reading of the pump's cursor location. (E.g. 10 mm on the pump scale).
5) Calculate the difference on the pump's scale reading. (E.g. 10 mm - 6 mm = 4 mm). The difference is the conversion factor between mm and ml of the current loaded syringe per ml. (E.g. 4 mm - 1 ml, the conversion factor is 4 mm/ml)
6) Set the desired infusion rate by *Formula : Conversion factor x desired ml/hr rate.* (E.g. If the desired driving rate is 10 ml/hr, then the equivalent rate on the pump is 4 mm/ml x 10ml/hr - 40 mm/hr. Therefore, set the driving rate to be: 4 0 on the pump)



Operation Procedures: (Continued)

SET INFUSION RATE – COMPREHENSIVE METHOD (WITH RULER)

The graduations of syringes vary in terms of brands and sizes. To ensure an accurate infusion, the pump uses driving speed to calculate the flow rate. Driving speed range is in 1 mm/hr increment from 1 mm/hr - 99 mm/hr. Staff gauge range is from 0 - 60 mm. There are two ways to calculate desired flow rate:

1) Set driving rate by flow rate. First, use a ruler and measure the ml scale to determine mm/ml of each graduation scale. Then, multiply by desired infusion flow rate (ml/hr), and get the driving speed in mm/hr.
Formula: ml/hr × mm/ml = mm/hr For example: Use a 10 ml syringe for infusion. The length of each 1 ml scale is 4.5 mm; desired infusion flow rate is 2 ml/hr; then, use the formula to calculate. 4.5 mm/ml × 2 ml/h= 9 mm/hr Therefore, set the driving rate to be: 0 9

2) Set driving rate by infusion volume First, use a ruler and measure the length of medication in the syringe. This is to count the medical solution in mm not ml. Then, divide this number by desired completion time (hr) to determine the driving rate in mm/hr. *Formula: mm ÷ h = mm/hr.* For example: The medication in the syringe is 9 ml. Load this syringe onto the pump, the scale reading of the medication in the syringe is 40 mm in length. The desired infusion time is 5 hours.
40 mm ÷ 5 hr = 8 mm/hr. Therefore, set the driving rate to be: 0 8

START INFUSION

Turn on the ON/OFF switch to start infusion. The running indicator will flash during normal operation while the rate setting key is locked. To change the infusion rate, you MUST reboot the pump. Turn off the ON/OFF switch, change the rate and turn on again. When batteries begin to run down, an audible and visual alarm is activated. When the battery voltage cannot sustain a normal operation, LOW BATT and COMPLETE/OCCLUSION audible and visual alarm will both be activated. When infusion is completed or an occlusion happens, the pump stops operation with an audible and visual alarm. To continue infusion, you MUST correct the error and reboot the pump.

BOLUS CABLE

The pump has a PCA feature. As directed by the DVM, if the PCA feature is required, plug the bolus cable into the pump socket to enable the PCA feature. During a normal infusion, while additional injections may be needed, you can push the button on the bolus cale to inject an additional dosage. Each PCA dosage is 1/4 of the preset delivery dosage. For safety of the patient and to control the frequency of PCA injections, the interval between two PCA injections is programmed to be less than 30 minutes.

Storage

This productshould be stored in an environment with ambient temperature of 14°F-131°F (-10°C - +55°C), relative humidity below 93%, and air pressure 500hpa - 1060hpa. Do not store close to corrosive vapour and/or harmful impurities.

Limited Warranty

KD Scientific Inc. warrants to the first consumer purchaser, for a period of one year from the date of purchase that this unit, when shipped in its original container, will be free from defective workmanship and materials and agree that it will, at its option, either repair or replace the defective unit.

This warranty does not extend to misuse, neglect or abuse, normal wear and tear, accident, modification or unauthorised repair.

KD Scientific will not be liable or in any way responsible for any incidental or consequential economic or property damage. Some States do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

There are no implied warranties of merchantability, or fitness for a particular use, or of any other nature. Some states do not allow this limitation on implied warranty, so the above limitation may not apply to you.

If a defect arises within the warranty period contact KD Scientific Inc., (see address below).

The customer is responsible for shipping charges and must first obtain a Return Material Authorization number (RMA) before the unit will be accepted. If a replacement unit is issued it is covered only for the remainder of the original warranty period dating from the purchase of the original device.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

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