

**Grady Medical Vetflo 7902B  
Infusion Pump**

**(For Veterinary use only)**

**Operations Manual**

Please read this operation  
manual carefully before use,  
and make sure to follow the  
instructions.

Have Questions? Please call us at 800-800-2585  
[anagrad@gradymedical.com](mailto:anagrad@gradymedical.com)

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## **1. Commitment**

The user enjoys one-year free repair for the whole pump under our limited warranty, three-year quality assurance, lifelong maintenance and other rights from the purchasing date. Please note, any damage done to the function due to the following situations shall not be the responsibility of our company, but the user can enjoy maintenance by paying repair cost:

- \* Malfunctions caused by opening the pump for repair or adjustment without our permission
- \* Improper use of AC power or damage caused by force majeure such as thunder and lightning.
- \* Accidental fall, improper use, abuse, incorrect installation, disassembly and maintenance by non-professionals, or posting back to manufacturer for repair without original package.

Only the manufacturer and authorized agents can repair or replace the defective products. When calling to report the device's malfunction, please offer the device's serial number. If you need send your device back to manufacturer for repair, use original packing box and foam padding for transport.

## **2. Precautions:**

- \* This pump should be operated by qualified medical personnel. When using this pump, place it as far-away as possible from devices which can emit electromagnetic radiation to avoid electromagnetic interference.
- \* This device accepts infusion set which complies with laws and regulations, but the lucifugal infusion tubing is not applicable.
- \* Keep the pump as high as 50 ~ 80cm above the heart of patients for infusion.
- \* The medical personnel should regularly check the clinical situation when using this pump and make timely adjustment when necessary instead of just relying on the pump alarm system.
- \* Under a single malfunction during transmission, the maximum volume is 0.1mL.
- \* This pump can be used for three years or accumulatively work 10000 hours.

## **Warnings:**

- \* This infusion pump uses AC power supply which is 50 HZ, 100-240 V. It is strictly prohibited to use other types of AC power supply.

- \* In the process of use, please don't clean this pump in any case. If there is any liquid, stop operation and turn off AC power promptly first before wiping off the liquid.
- \* Different brands of the infusion sets need to be calibrated first before use. Otherwise, the infusion error may not be in the control range (For calibration, please refer to **12**, Page13).
- \* Infusion sets are disposable supplies. Do not reuse them and do not use one IV set on this pump continuously for over 24 hours.
- \* When replacing infusion bottle, the IV set need not be taken out. If needed, the lower end of the line must be clipped close before the door is opened and the tubing taken out.

**Taboos:**

- \* The rate of the intravenous infusion requires adjustment by medical professionals. Patients and families must not adjust it randomly lest it produce severe consequences.
- \* This pump is not applicable for use in hyperbaric oxygen chambers.

**3. Product Maintenance**

**3. 1 Daily maintenance for the device:**

- \* If necessary, please wipe off the solution which splashes over the pump after each use. You can use disinfectant to clean first, but finally use dry cloth or sponge to wipe the pump. Do not use the pump till 2 hours later after cleaning.
- \* Check whether leakage occurs every six months. After installing the tubing, do not start operation but observe if there is any liquid running out of the needle. If yes, contact the agent for service.
- \* Do not use dimethyl benzene, acetone, or similar chemical reagents to clean the pump. The chemical reagents may damage the plastic components and lacquer material of the pump.
- \* If the pump is stored for a long time, it must be properly cleaned with battery fully charged and then stored in clean, dry chamber under normal temperature and pressure. Use original packing box to pack the pump for good protection.

**3. 2 Use of rechargeable batteries:**

- \* The battery used in this pump is rechargeable lithium ion battery which is free of memory-effect problem. Charge the battery fully for 8~12 hours (power-on) after the battery capacity is exhausted.
- \* The charging system of the battery has a battery protection function which prevents over-charge

or over-current. When the pump is in use, the charging system can charge the battery automatically, and when the battery capacity reaches saturation, the system shall automatically cut the charging circuit, thus preventing over-charge.

\* Rechargeable batteries are easily consumable products. Replace the battery if it can work continuously for less than 1 hour. Used battery is not to be disposed of casually but treated as per pollution-free requirement.

#### 4 Product Label

The label is on the bottom of the pump shell. It accords with corresponding standards, marking manufacturer, date of production, serial number, classification, waterproof level, etc.

#### 5. Symbols and Significance

Symbols	Descriptions
	Refer to User Manual
	Be Careful! Refer to User Manual
	Type BF Applied Part
IPX1	Waterproof level
	Class II Equipment
	Manufacturer
	Production Date
	Transport Package, fear of rain

	Be careful. Handle with care!
	Upward during transportation.
	5 layers at most of same package

### 6. Intended Use

This product is widely applied in ICU, CCU, tutelar ward, emergency room, operation rooms, internal medicine, surgical department and general ward to patients who need infusion of large, medium and small hospitals. For safer infusion, please read the User Manual completely before using the pump. Pay special attention to the following contents:

### 7. Product Structure

This infusion pump is a high-precision equipment designed and made in accordance with relevant standards and it is mainly used for hospitals/individuals who need infusion at controlled rate; The product design scheme and technology are under patent protection and are not be to forged or counterfeited by any party or individuals. If any such case occurs, we shall appeal to law.

The infusion pump consists of the following parts:

1. **The Microcomputer System:** the brain of the whole system. It gives an intelligent control and management to the whole system as well as processes signals detected. It adopts double CPU's for mutual backup and monitoring. When one single-chip microcomputer has malfunction in circuit, the other one shall give alarm instantly and cut off the power of the host computer. Then the whole pump stops operation and thus ensures patient's safety.
2. **Pump structure:** the heart of the whole system. It is the driving force of infusion liquid. By means of step motor, the peristaltic fingers squeezes the liquid forward along the tubing into patient's vein.
3. **Detection device:** mainly various sensors, such as ultrasonic sensor (for detecting air in line) and pressure sensor (for detecting occlusion), etc. They can detect corresponding signals,

which, after being amplified, shall be transferred to microcomputer system for signal processing and thus incur control instruction for corresponding operation.

4. **Alarm system:** The pump, upon receipt of signals detected by the sensors, shall process the signals and then give alarms to alert the user for immediate and correct operation. It contains mainly visual alarm (text on LED) , audio alarm (loudspeaker and buzzer) and photoelectric alarm (light emitting diode).
5. **Input and display device:** The keyboard is for inputting parameters needed for infusion such as rate and VTBI. The LED displays the various infusion parameters and the on-going status of operation.

## 8. Product Features

Small, lightweight and compact  
 Rate mode, Drop mode  
 Easy panel with number keys and function keys  
 9 tube channels for storage of different brands of IV sets  
 3-level occlusion sensitivity adjustable  
 Large LED screen with clear view of infusion parameters from distance  
 Ultrasonic sensor for air detection  
 Audiovisual alarms for air, occlusion, over, door, L.batt, er, no operate  
 Prime/bolus/KVO functions  
 Rechargeable internal battery  
 Pole clamp and snap hook flexible for stand, bar, cage or platform use  
 Piggyback function

## 9. Product Specifications

Accuracy error rate	±5%(±3%after proper calibration)
Applicable IV sets	All brands of IV sets of national standard (tubing diameter: 3.5-4.5mm)
Rate range	0.1~1200 ml/h(Rate mode); 1-400drops/min (Drop mode); 1-9999min (Time mode)

VTBI	1-9999ml
VI	0-9999ml
Prime/Bolus rate	0.1-1200ml/h, adjustable (default: 600ml/h)
KVO rate	Upon 'over' alarm, the pump continues at 6ml/h to keep vein open.
Power	AC100~240V, 50Hz±1Hz
Fuse	T 2AL 250V
Built-in battery	Rechargeable lithium ion battery, 8.4V, 1600mAh
Duration of battery	Run continuously for over 2 hours at the fastest rate (600 ml/h) after being fully charged.
Battery charging	The pump starts charging the battery automatically after being connected to AC power. It needs 8~12 hours (power-on) to get battery fully charged.
Displayed information	Rate, VTBI, VI, air, occl, over, AC / battery symbol, L.batt., Er, door open, tube, menu, occlusion level, no operate
Alarm functions	over, L.batt., air, occl, er, door open, no operate
Occlusion gate	"Occl" alarm shall be given when tubing pressure reaches 0.08Mpa~0.16 Mpa. The occlusion dose is 0.8ml. The responsive time is respectively: 2~3 seconds at higher rate (400ml/h) 5~7 seconds at lower rate (200ml/h) 35~50 seconds at very low rate (25ml/h)
Shell size	130x130x80 mm (LxHxD)
Net weight	≤1.1kg
Classification	Class II, type BF, waterproof level: IPX1
Shell material	Environmental-friendly ABS plastic
Operation conditions	Ambient temperature: 5~40°C, atmospheric pressure: 70~106kPa, relative humidity: 20%~80%
Storage conditions	Ambient temperature: -15~50°C, atmospheric pressure: 70~106kPa, relative humidity: 20%~80%
Electricity safety	GB 9706.1-2007,GB 9706.27-2005

## 10. Panel Information and Alarm Signal Instruction

### 10.1 Panel Information



No.	Name	Functions
1	<b>0-9</b> number keys	Set parameters like rate, VTBI and other system parameters, etc. <b>0</b> key can also silence alarms except L.batt.
2	<b>SET</b> key	Set rate, VTBI, tube, and menu for system parameters
3	<b>CLEAR</b> key	Clear the accumulated volume as '0'
	<b>PIGGY</b> key	In main display, press <b>PIGGY</b> key to enter Piggyback program--to give infusion of other drug (a supplemental bag of other medical liquid) prior to or during primary infusion process.  In main display or Piggy Mode display, after pressing <b>SET</b> , <b>PIGGY</b> key functions as down arrow.
	<b>POWER</b> key	Switch pump on / off (press the key for about 3 seconds for 'on', 5 seconds for 'off').
	<b>PRIME/BOLUS</b> key	Press and hold the key without loosening finger. (prime in 'stop' status, bolus in 'running' status)
	<b>RUN/HOLD</b> key	Start / Stop infusion, or stop alarms
4	Door latch Door recession	Press the door latch to open the door Press on the door recessions to close the door
5	AC symbol	Display when connected to AC power; hide when disconnected from AC power.

5	Occlusion	When the tubing is blocked, a 'beep' alarm signal shall be given at an interval of 1 second.
	Air	When the tubing contains air bubbles or becomes empty, a 'beep' alarm signal shall be given continuously.
	Over	When <b>VTBI</b> reaches its preset volume, a 'beep' alarm signal shall be given continuously.
	Flow direction	Insert the tubing along the tubing guide. Fluids should run from left to right, facing the front of the pump.
	Battery capacity	It displays battery capacity status. It flashes upon low battery.
	Rate	Set infusion rate at ml/h
	Drop	Set infusion rate at drop/min
	VTBI	Set the total volume to be infused
	VI	The volume already infused at the present.
	Door	It displays upon door open; it hides upon door closed.
	Er	System error indicating 'not-working'
	Occlusion levels	H (longer time to give 'occl' alarm) M (medium time to give 'occl' alarm) L (shorter time to give 'occl' alarm)
	Tube	1-9 tube channels to save accuracy values for different brands of IV sets.
	Menu	The Menu is for entering internal parameter setting.
Time remains	Time remains is automatically calculated based on Rate and VTBI to alert user.	
6	Pump door	After closing the door, the pump can then work.

### 10.2 Alarm Signal Instruction

1	'Occl' alarm	Adjustable occlusion gate range: 0.08~0.16Mpa, When occlusion pressure reaches 0.18 Mpa, the tubing pressure shall reach the maximum.
2	'Air' alarm	Adjustable air alarm sensitivity levels: 550~650 It can be silenced by pressing <b>0</b> key, but can only be stopped by opening the door to eliminate the air in line.

3	'Over' alarm	The VTBI completes. It cannot be set or adjusted.
4	'L.batt' alarm	When working on battery, a 'beep' signal shall sound every 6 seconds along with one grid of battery capacity symbol flashing intermittently. When battery capacity is too low to drive the pump, a continuous 'beep' sound shall be given.and cannot be silenced. You need to connect the pump to AC power to silence the alarm.
5	'Silence' alarm	Press <b>RUN/HOLD</b> or <b>0</b> to silence alarms. 'L.batt' alarm can only be silenced by connecting pump to AC power.
6	'Door' alarm (only textual)	1. Door is open. Re-close the door properly to eliminate the alarm. 2. Door sensor is loosen or defective. Check door sensor on power board or replace it if defective.
7	'Er' alarm	1.Try to power off and re-power on again to see if Er occurs again. 2.If yes, the pump cannot work and has malfunction.
8	'no operate' alarm	1.. Press ' <b>0</b> ' key to silence alarm signal, but the test alarm remains. 2. To silence & stop 'no operate' alarm, press <b>CLEAR</b> or any other key. Then press <b>RUN/HOLD</b> to start infusion. 3. Or upon 'no operate' alarm, press <b>RUN/HOLD</b> directly to start infusion.

## 11. Operation Steps

### 11. 1 Connect to AC power

#### 11. 2 Power on

Press & hold **POWER** for 3 seconds till hearing a 'beep' sound and LED displays information.

The upper indicator light should be **RED** (when no tubing is installed).

**NOTE:** If the indicator light is **GREEN** when **NO** tubing is installed, it means air sensor defective.

Do not use the pump. Contact the sales agent for solution.

Do not install IV set before power-on. Otherwise, the pump shall give 'air' alarm as soon as **RUN/HOLD** is pressed.

Verify that AC symbol displays on top left corner of LED. If not, check and re-plug power cord firmly. If still not, contact the sales agent for aftersales service.

#### 11. 3 Install IV set

Fill IV set with liquid with no air in line. Then close the roller clamp of the tubing.

Press door latch to open the door. Use both thumbs to press tubing into air sensor (left) first.

Then push the clipper (right) up and leftward and line the tubing straight along the groove correctly from left to right.

Press door recessions to close the door. The upper indicator light should turn **GREEN**.

**NOTE:** If the indicator light is still **RED**, it means the tubing is not well inserted into air sensor, or that it contains air in line. Re-install it properly to turn the light **GREEN**.

#### 11. 4 Set parameters for infusion

Each new unit takes **Rate Mode** as default mode.

##### Set **Rate** & **VTBI**

In main display, press **SET**. **Rate** value flashes. Press number key to adjust a rate value.

Press **PIGGY** key to jump to **VTBI**. Press number key to adjust **VTBI**. Press **SET** to save..

Set **Tube channel** (adjust only when needed):

If you'd change to **Tube 2**, in main display, press **SET**. Press **PIGGY** key till **TUBE** flashes.

Press number key to adjust tube channel as **2**. Press **SET** to save.

**NOTE:** Tube channels shall be saved after power-off. Next time if you'd use the same brand of IV set in this tube channel, no need to set 'Tube' again.

#### 11. 5 Clear accumulated volume(VI)

In 'stop' status, press **CLEAR** to get **VI** as '0' .

#### 11. 6 Start infusion

Confirm if all parameters are properly set, press **RUN/HOLD** to start operation.

If '**no operate**' alarm sounds ('no operate' alarm functions only when you have pressed **SET** to adjust Rate or **VIBI** etc), press '**0**' key to silence alarm signal, but text alarm remains.

Then press **RUN/HOLD** to start. Or upon 'no operate' alarm, press **RUNHOLD** directly to start .

#### 11. 7 Finish infusion

When **VI** reaches the preset **VTBI**, the pump gives audio-visual 'over' alarm and turns to **KVO** automatically. Press **RUN/HOLD** to stop alarm and operation.

#### 11. 8 Power off

Press and hold **POWER** for about 5 seconds till hearing 1 'beep' sound. Then the pump shall switch off.

#### 11. 9 PRIME/BOLUS

**BOLUS:** In 'running' status, press & hold **BOLUS** without loosening finger. The pump turns to **BOLUS** rate (Bolus volume shall be added to **VI**) . Release finger, the pump returns to primary infusion. **PRIME:** In 'stop' status, press & hold **BOLUS** without loosening finger. It starts priming (Priming volume shall not be included in **VI**).

## 11. 10 Piggyback program

Piggyback function is applicable to users who need to deliver two different kinds of drugs at two different sequential rates and volumes in one infusion process. The piggy bag is a supplemental bag that contains another type of medication that needs to be delivered at a different (usually lower) rate.

The piggyback is aptly named because the medication is given on top of the main intravenous solution. The piggy bag is usually hung higher than the main solution and is connected to a port in the main tubing. These allow the piggy fluids to be infused first due to the higher pressure of gravity.

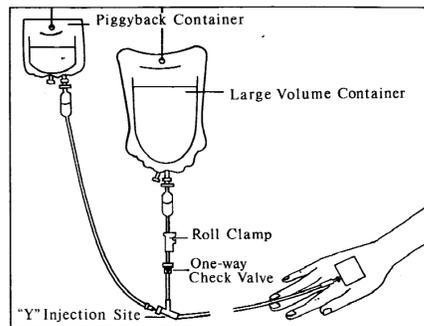
The piggy infusion may be used prior to or during primary infusion. The pump, which can set the rate and VTBI of piggy solution and main solution, allows the piggy solution (the secondary medication) to infuse first. After the piggy bag is finished, the pump shall switch to the main bag automatically.

### Operation of piggyback function:

#### Step 1 Install IV bags and IV sets

Install main bag properly for primary infusion. Fill IV set with liquid with no air in line. Then install the tubing properly in the pump.

Install piggy bag properly in a higher position than main bag. Connect it well to main bag.



#### Step 2 Set Rate and VTBI

##### For piggyback infusion prior to primary infusion

First, set **Rate** and **VTBI** for primary infusion:

In main display, press **SET**. Input a rate for primary infusion.

Press **PIGGY** key to jump to **VTBI**. Input a **VTBI** for primary infusion.

Press **SET** to save. Do not press **RUN/HOLD** yet.

Then (in main display), press **PIGGY** key to enter **Piggy Mode** display.  
In **Piggy Mode** display, press **SET**. Piggy rate flashes, Input a piggy rate.  
Press **PIGGY** key to jump to piggy **VTBI**. Input a piggy **VTBI**. Press **SET** to save.  
The pump remains on **Piggy Mode** display.

**NOTE:** Piggy **VTBI** can be the same as or no more than that of piggy bag.  
Piggy **rate & VTBI** values shall be saved after power-off.

#### Step 3 Start infusion

Confirm **Piggy Mode** displays on the screen Press **RUN/HOLD** to start.

**NOTE:** To clear piggy **VI** if any, press **CLEAR** key.

Upon piggy **VTBI** 'over', alarm sounds, press **RUN/HOLD** to stop.

Disconnect piggy bag from main bag if needed. Make sure main bag is open for primary infusion.

Now, press **PIGGY key** to return to primary infusion display (main display). LED displays information of main bag now.  
Press **RUN/HOLD** to start primary infusion.

#### Step 4 Stop infusion

When **piggy VI + primary VI = primary VTBI**, 'over' alarm sounds and the pump starts **KVO** function automatically.  
Press **RUN/HOLD** to stop alarm and operation.

#### For piggyback infusion during primary infusion

To add piggy infusion after primary infusion starts already for a while, press **RUN/HOLD** to stop.

Close main bag and install piggy bag properly and connect it well to main bag.

In main display, press **PIGGY key** to enter **Piggy Mode** display.

In **Piggy Mode** display, press **SET**. Piggy rate flashes, Input a piggy rate.

Press **PIGGY** key to jump to piggy **VTBI**. Input a piggy **VTBI**.

Press **SET** to save. The pump remains on **Piggy Mode** display.

Confirm LED displays **Piggy Mode**, press **RUN/HOLD** to start. The pump works on piggy program.

Upon completion of piggy **VTBI**, 'over' alarm sounds. Press **RUN/HOLD** to stop alarm.

Press **PIGGY** key to return to primary infusion display (main display). Disconnect the piggy bag.

Make sure main bag is open for primary infusion. Press **RUN/HOLD** to go on with primary infusion.

When **piggy VI + primary VI = primary VTBI**, 'over' alarm sounds and the pump shall start **KVO** function automatically.  
Press **RUN/HOLD** to stop alarm and operation.

## 12. Accuracy Calibration

### 12.1 Changing to a new brand of IV set

The factory takes 'Tube 1' as default tube channel and has a default accuracy value for each new unit (calibrated with **SM-IV01** brand of IV set).

If the user'd use his own brand or more than 2 other brands of IV sets on the same pump, he needs to calibrate his tubings in Tubes 1~9 based on the default accuracy value and save his accuracy values respectively under Tubes 1~9 .

At the time of infusion, he just needs to select the tube channel that corresponds with the actual brand/type used.

### 12.2 Calibration of IV set under Tubes '1~9'

Step 1 Install a brand new IV set. Use a measuring cup to get flown-out liquid.

Step 2 Use **RATE MODE** and **Tube 1** to calibrate (or any other tube channel 1-9 for choice).

In main display, press **SET**. Set **Rate** as 150ml/h.

Press **PIGGY** to jump to **VTBI**. Set **VTBI** as 10ml.

Press **SET** to save. **CLEAR VI** as 0 if any.

Press **RUN/HOLD** to start.

Step 3 Upon 'over' alarm, press **RUN/HOLD** to stop. Write down the real volume: \_\_\_ml

(**Tips:** For users who'd often have **VTBI** as over 100ml (100-200ml or more), better get 'real volume' as 11ml instead of 10ml. In this way, when infusing up to 100-200ml, it's still within accuracy. )

Step 4 To adjust accuracy value, press **SET**.

Press **PIGGY** key till **MENU** flashes. Press **SET** to enter.

(**NOTE:** If not wishing to enter **MENU**, press **PIGGY** key till **Rate** flashes.

Press **SET** to exit to main display.)

Press **5** for '**internal parameters**'. Press **5** for '**precision compensate**'.

Press number keys to adjust the accuracy value in way below:

Suppose the original value (dafault value) shown in the pump is 50.

If real volume is 12ml, add 6 to 50. Adjust value as 56. Press **SET** to save.

Or, if real volume is 9ml, deduct 3 from 50. Adjust value as 47. Press **SET** to save.

Then press **SET thrice** to exit to main display.

**NOTE:** For every 1ml more / less, add / deduct by 3 to / from the original value.

Step 5 Test accuracy at rate 150ml/h with **VTBI** 10ml again.

If still not accurate, adjust the accuracy minutely again till it reaches your requirement.

**NOTE:** Each time you check real volume, use an **unused section of the tubing inside**

the pump to ensure accuracy.

### 13. Other internal parameters

Press **SET**. Press **PIGGY** key till **MENU** flashes. Press **SET** to enter.

Press **5** for 'internal parameters'.

Select the item you need to adjust and press number key to adjust it.

Press **SET** to save. Press **SET again** till exiting to main display.

#### 13.1 Air size

550-700 adjustable. The smaller the value, the less sensitive the 'air' alarm.

**NOTE:** Do not adjust air value unless guided by manufacturer's engineer.

#### 13.2 Bolus rate

0.1-1200ml/h adjustable.

#### 13.3 Tube pressure

Tube pressure is automatically diagnosed by pressure sensor and cannot be adjusted.

It is only for observation.

#### 13.4 Motor compensate

1-255. The smaller the value, the more powerful the motor's driving force .

**NOTE:** Do not adjust Motor value unless guided by manufacturer's engineer.

#### 13.5 Precision compensate

1-255. The smaller the value, the more the real volume.

To adjust infusion accuracy, refer to Chapter **12.2 Calibration of IV set under Tubes '1-9'**

**NOTE:** Whenever the user changes to a new brand of IV set (or same brand of IV set but with different specification, ie different drop/ml), he needs to calibrate the new brand of IV set. He may calibrate it under another tube channel.

#### 13.6 Pressure sensitivity

3 levels adjustable: high, middle or low.

The smaller the level, the more sensitive the 'occl' alarm.

**NOTE:** Do not adjust pressure value unless guided by manufacturer's engineer.

#### 14. Troubleshooting

Malfunctions	Possible causes	Solutions
Cannot power on	<ol style="list-style-type: none"> <li>1. AC power not well connected</li> <li>2. Press <b>POWER</b> not long enough</li> </ol>	<ol style="list-style-type: none"> <li>1. Verify that AC power is well connected. Re-plug it firmly if not.</li> <li>2. Press and hold <b>POWER</b> for about 3 seconds till the pump switches on.</li> </ol>
Cannot power off	Press on <b>POWER</b> not long enough	Press and hold <b>POWER</b> for about 3 seconds till the pump switches off.
Keys not responsive	<ol style="list-style-type: none"> <li>1. Pump door not well closed</li> <li>2. IV set not well installed</li> </ol>	<ol style="list-style-type: none"> <li>1. Open and close the door again to confirm.</li> <li>2. If IV set is not well installed, the pump won't work after pressing <b>RUN/HOLD</b>. Open the door and reinstall the tubing correctly.</li> </ol>
No AC symbol on top left of LED	AC power not well connected	Check whether AC power cord is well connected.
A 'beep' alarm signal every 3 seconds	<ol style="list-style-type: none"> <li>1. AC power not well connected</li> <li>2. Indicating the pump is working on battery at the moment</li> </ol>	<ol style="list-style-type: none"> <li>1. Check whether AC symbol displays on top left corner of LED. If no, confirm if AC power is well connected. Re-plug it firmly.</li> <li>2. The 'beep' signal is normal if the pump is working on battery.</li> </ol>
Frequent 'beep' alarm signals	The battery capacity is to be exhausted	Connect to AC power to charge the battery timely.
'Occl' alarm given as soon as <b>RUN/HOLD</b> is pressed	<ol style="list-style-type: none"> <li>1. The tubing's flow clipper downstream is not open.</li> <li>2. <b>RUN/HOLD</b> is pressed immediately after door closes</li> </ol>	<ol style="list-style-type: none"> <li>1. Open the tubing's flow clipper downstream.</li> <li>2. After closing door, wait 5+ seconds to start infusion.</li> </ol>
'Air' alarm given as soon as <b>RUN/HOLD</b> is pressed	<ol style="list-style-type: none"> <li>1. The roller clamp upstream may not be open.</li> <li>2. The tubing is not well inserted into air sensor</li> <li>3. The IV set is installed before pump is powered on.</li> </ol>	<ol style="list-style-type: none"> <li>1. Open the roller clamp upstream.</li> <li>2. Open the door. Reinstall IV set properly. Try to press the tubing on the two sides of the air sensor to get the tubing down into the sensor.</li> <li>3. Switch the pump off. Then power on and then install IV set.</li> </ol>