PRACTIVET

Syringe Pump

User Manual

PRACTIVET

Solutions Specialists

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Specifications

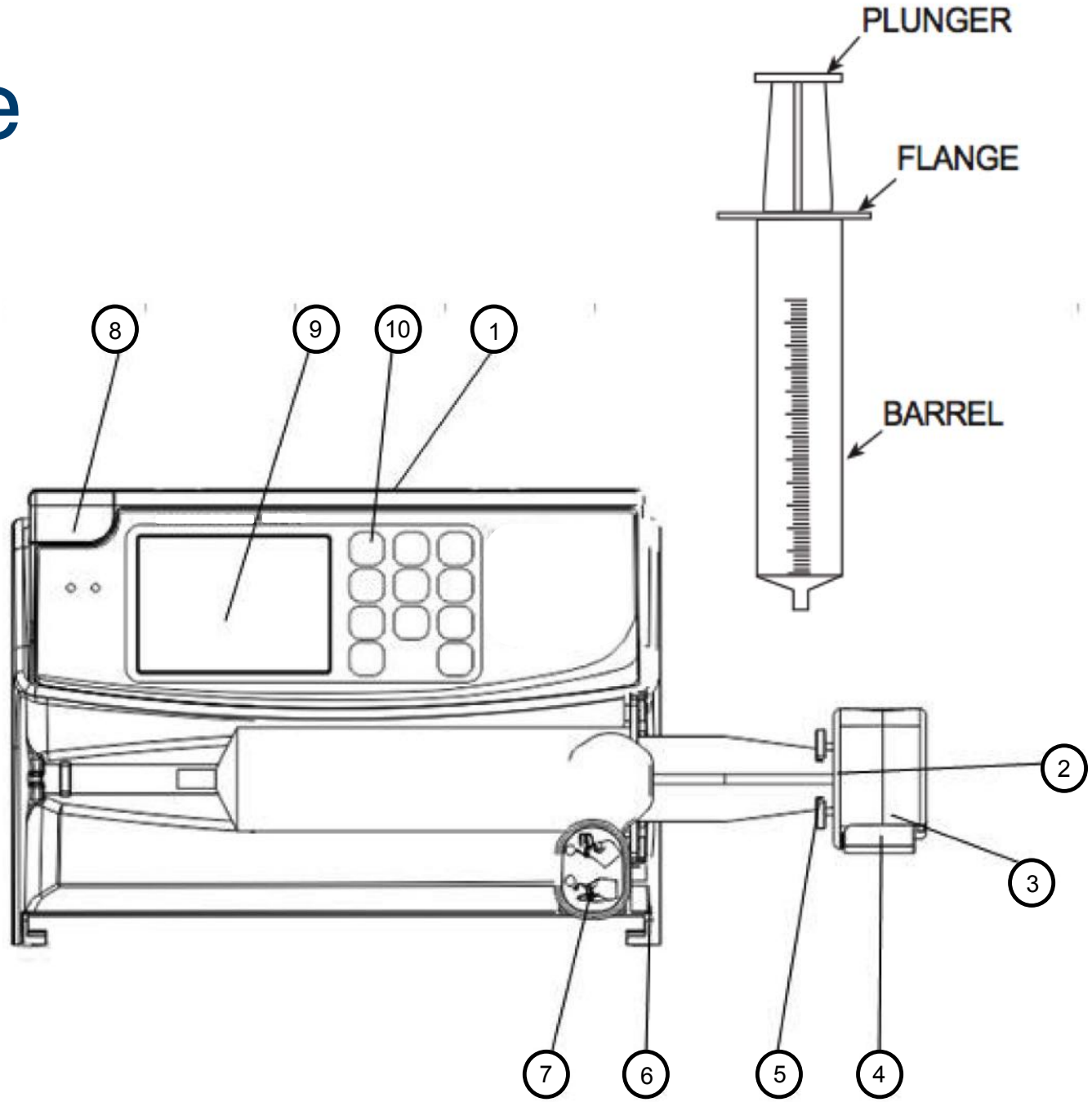
Length	**30 cm**
Height	13 cm
Width	12.5 cm
Weight	1.8 kg
Waterproof Rating	IPX3
Battery	Rechargeable Li Polymer 7.4 V 1900 mAh
	6 Hour Battery Life Running
	3 Hours When Off; 10 Hours Running
Infusion Modes	Drug Library
	Intermittent Infusion
	Dose Mode
	Time Mode
	Rate Mode
Accuracy	+/-2%
Keep Vein Open Rate	0.1-2 ml/hr

Specifications

Infusion Rate	5ml Syringe	0.1-150 ml/hr
	10ml Syringe	0.1-300 ml/hr
	20ml Syringe	0.1-600 ml/hr
	30ml Syringe	0.1-900 ml/hr
	50/60ml Syringe	0.1-1500 ml/hr
Bolus Rate	5ml Syringe	100-150 ml/hr
	10ml Syringe	100-300 ml/hr
	20ml Syringe	100-600 ml/hr
	30ml Syringe	100-900 ml/hr
	50/60ml Syringe	100-1500 ml/hr
Default Purge Rate	5ml Syringe	150 ml/hr
	10ml Syringe	300 ml/hr
	20ml Syringe	600 ml/hr
	30ml Syringe	900 ml/hr
	50/60ml Syringe	1500 ml/hr

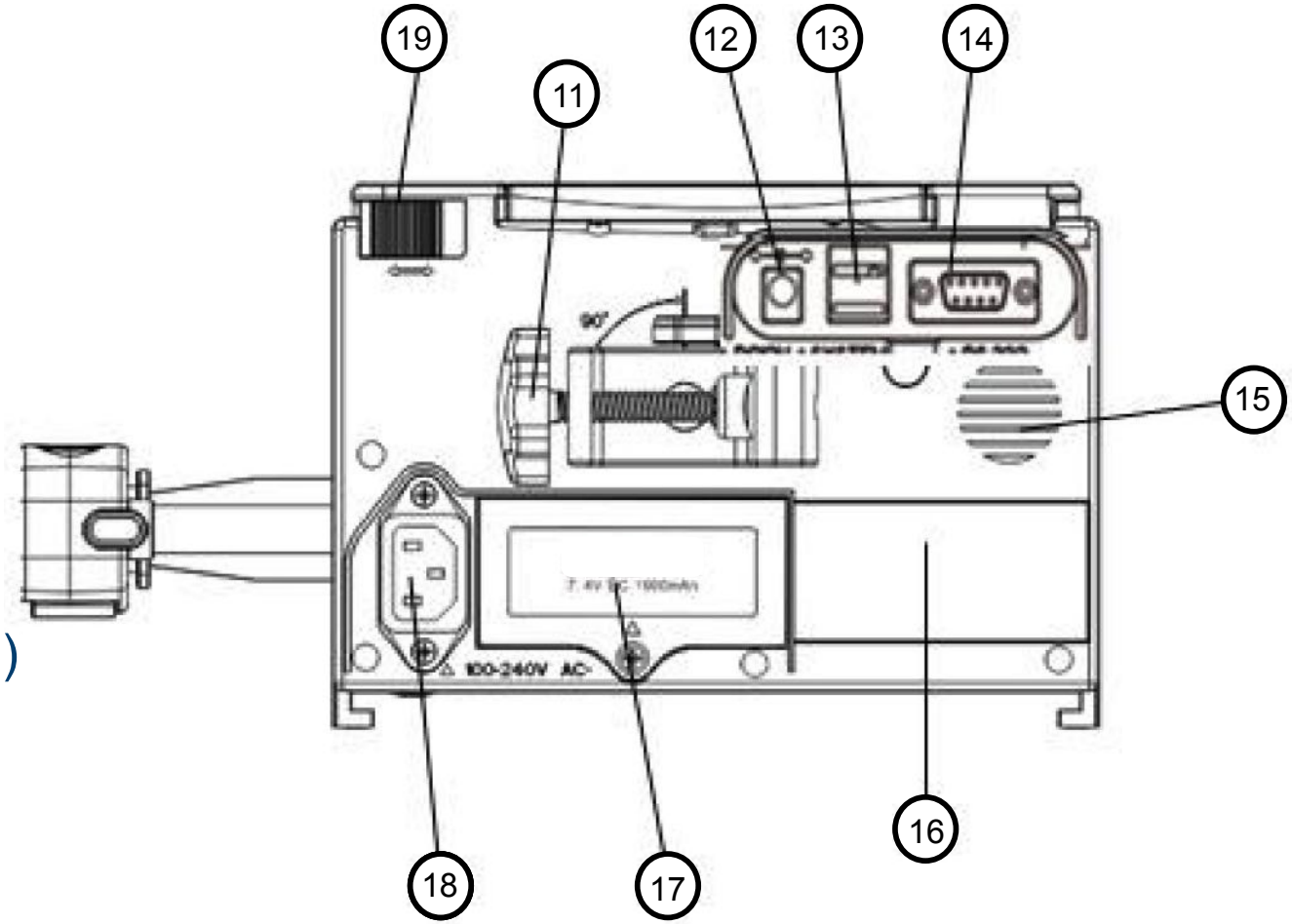
Front Appearance

1. Carrying Handle
2. Plunger Detector
3. Plunger Driver
4. Plunger Secure/Release Lever
5. Plunger Clamp
6. Flange Slot
7. Barrel Clamp
8. Indicator Light
9. Display Interface
10. Keypad

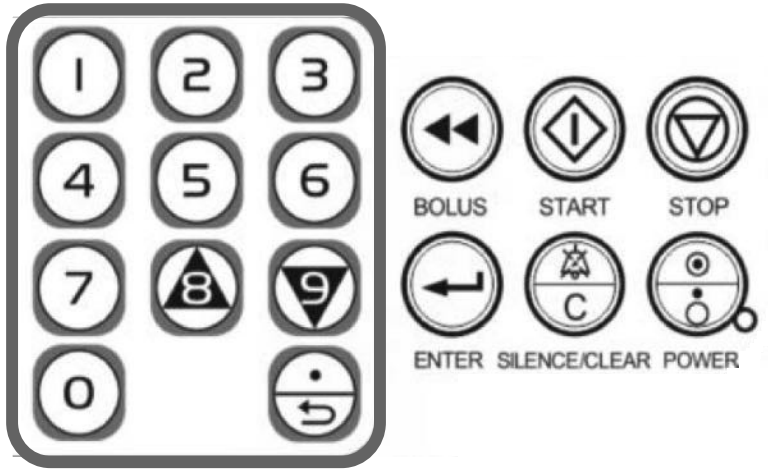


Back Appearance

11. Removable Pole Clamp
12. DC power Port
13. Expansion Port (USB)
14. RS232 Port
15. Speaker
16. Unit Information Label
17. Battery Compartment
18. AC Power Port
19. Release Lever (When Stacking)



Keypad



BOLUS key Used to prime set & run manual or automatic bolus
START key Press key to start infusion
STOP key Press key to stop infusion
ENTER key Press to save parameters

SILENCE / CLEAR key Press to silence alarms & clear value when inputting parameters
POWER key Switch on/off the syringe pump To power on, press and hold until screen is in illuminated
Page Up (#8) key In the menu selecting status, press this button to turn the page (page up)
Page Down (#9) key In the menu selecting status, press this button to turn the page (page down)
DECIMAL POINT key Used to enter a decimal when programming parameters RETURN/BACK key Use to return to the last operation interface

Pump Body Features

Pump Stacking

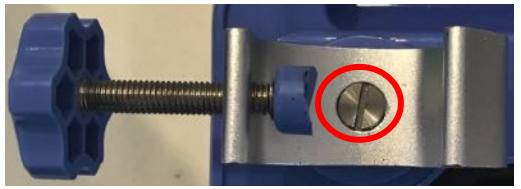
The PractiVet syringe pump has grooves at top of device to connect another syringe pump onto the top (stacked). Maximum stackable quantity is 6-unit syringe pumps.

- Secure syringe pump carrying handle down
- Line up the groves on the back of the bottom pump and front of the top pump
- Slide syringe pump on top from back to front of the bottom pump until you hear a click
- To detach a stacked syringe pump, press the lever in the back-right corner, and slide top unit backwards

Pole Clamp

Pole clamp can be secured to a vertical pole, horizontal pole, or removed

- Loosen clamp to expose screw on clamp
- Use a flat head screw driver & twist left
- If wanting to secure pole clamp in a vertical or horizontal position, line up grooves and tighten
- To remove, continue to unscrew pole clamp



Basic Operation

Connect Pump to Power Cord To Run or Charge

The battery will start charging when connected to external power

Infusion Pump can also run off of a charge – If NOT plugged in 'USE BATTERY' will appear at the top of the screen, meaning 'using battery'

Press the CLEAR/STOP button to disable this indicator – Indicator light will turn green

Switch ON/OFF

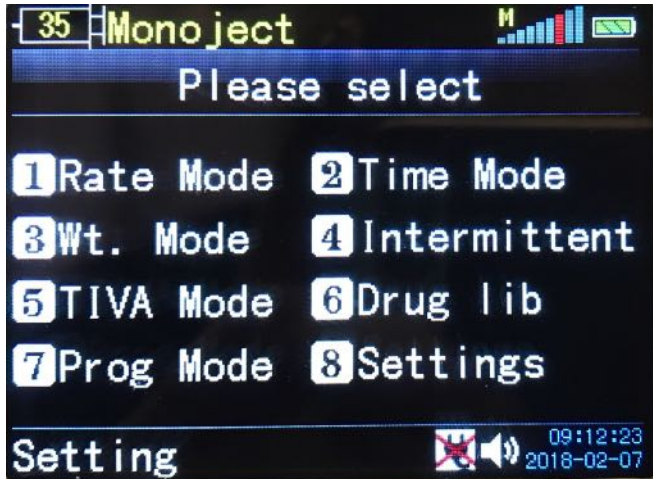
Press and hold POWER key until screen illuminates to turn on, & do the same to power off

When the pump is turned off, the accumulated volume infused goes to 0.0ml

Selecting Syringe

There are 4 brands of syringe built in the system:
Monoject, BD, Terumo & Nipro

Select the brand of syringe you wish to use in the setting menu before installing syringe



To Change Syringe Brand

Select SETTINGS (8) & Select SYRINGE (1)

Use arrow keys to highlight desired syringe brand & press ENTER to select

The selected syringe brand will be shown in the top right-hand corner of the screen

Installing Syringe

1. Press the lever on the end of the syringe pump arm
2. Slide outward until it reaches the end
3. Pull the flange clamp of the syringe pump and turn right 90° to lock it in the open position
4. Fill the syringe with liquid to be infused, connect IV tubing & prime
5. Secure flange by turning the flange clamp left 90°
6. Press the lever on the syringe pump arm and slide left until the end of the arm touches the end of plunger
7. Release the lever; the clip on the syringe pump arm will grip end of syringe plunger
8. After correct installation, syringe pump will recognize the syringe size automatically and displays the brand & size on top left corner of screen

Setting Infusion Parameters

On the main menu, press the corresponding key to enter desired infusion mode

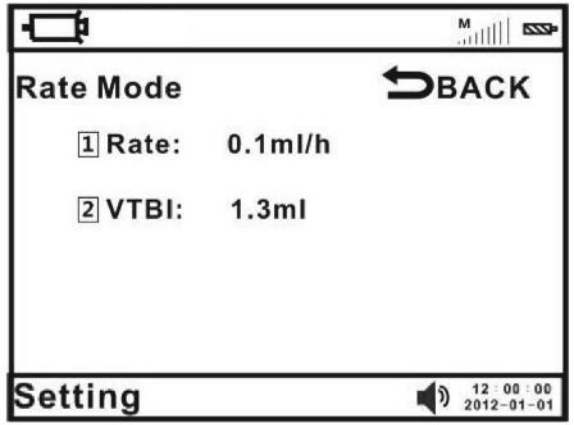
Rate Mode

Set Rate and VTBI

VTBI Range: 0.1-9999.9ml

Rate Range: 5-6ml Syringe: 0.1ml/hr-150
10ml Syringe: 0.1-300 ml/hr
20ml Syringe: 0.1-600 ml/hr
30-35ml Syringe: 0.1-900 ml/hr
50-60ml Syringe: 0.1m-1500 ml/hr

The flow rate will be calculated after setting parameters



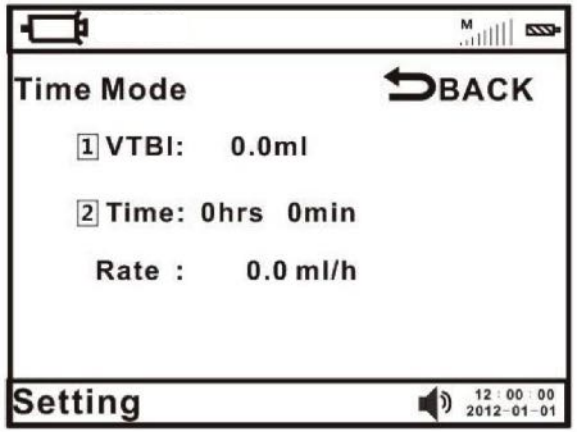
Time Mode

Set VTBI and infusion duration (time)

VTBI Range: 0.1-9999.9ml

Time Range: 0 hrs. 0 min - 99 hrs. 59 min.

The flow rate will be calculated after setting parameters

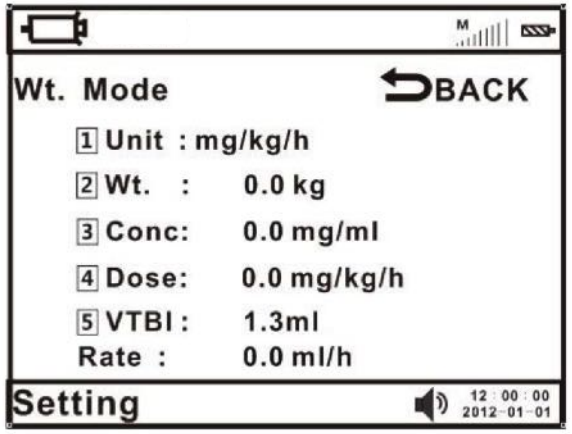


Setting Infusion Parameters

Body Weight Mode (Wt Mode)

Enter Unit, Body weight, concentration, dose, VTBI parameters
The flow rate will be calculated after setting the parameters
Example:

- Press the corresponding key for Unit (#1)
- Press up/down icon (#8/#9) to select desired unit & press ENTER to save
- To set weight (Wt.), press the corresponding key (#2)
- Input the patient's weight and press ENTER to save the value

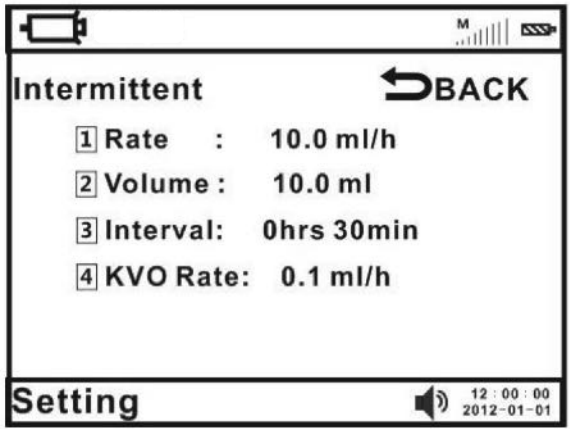


Intermittent Mode

Enter flow rate, volume limit, interval time and KVO
Example:

- Set rate: 10ml/h
- Infused volume: 10ml
- Interval: 30 minutes

The pump will infuse 10ml at rate 10 ml/h
The infusion will pause for 30min and run at KVO rate
The pump starts a 10ml infusion at 10 ml/h again



Check the Following Before Starting Every Infusion

- ✓ Pump is secured to pole, or on an even surface
- ✓ Always press ENTER to save the value after adjusting a parameter
- ✓ Ensure there are no air bubbles in the syringe or line
- ✓ Flange & barrel are secured correctly
- ✓ End of plunger is secured by arm
- ✓ Syringe brand & size displayed on the left corner of the screen is correct
- ✓ Double check parameters

Infusion Basics

Start Infusion	Press START key after setting all the desired infusion parameters During infusion, only BOLUS & STOP key will function The status will say “Running” on the bottom of LCD & the indicator light will flash green
Stop/Pause Infusion	During infusion or upon infusion completed, press STOP key The status will say “Stop” on the bottom of LCD & the indicator light will turn off
End Current Infusion	Choose “End injection” the Σ (volume infused) will set to 0 automatically
Continue Stopped Infusion	The Σ (volume infused) and other adjustable parameters will display on screen You can leave the previous infusion parameter or adjust the parameters at this time Press START to re-start infusion
Infusion Completion	After VTBI completed or Σ (volume infused) the syringe pump will start to infuse at the KVO rate alarm will sound Press STOP key to stop infusion KVO Function means keep patient’s vein open by keep infusion at a pre-set low rate

Bolus Infusion

Purge	In ‘stop’ status, press & hold BOLUS key The volume of purge is NOT included into volume infused Attention: Purge only works while NOT infusing; You should not use Purge when line is connected to the patient	
Manual Bolus	Program a bolus in the settings page (just RATE, leave VTBI at 0.0ml/h) During infusion, press & hold finger on BOLUS key The pump will run at pre-set bolus rate Releasing the button to continue infusion at original rate	
Automatic Bolus	Program a bolus in the settings page (RATE & VTBI) While the infusion is running, press & release BOLUS key The pump will administer bolus & revert to maintenance rate when prescribed bolus volume is complete	
Default Bolus Rates	5ml Syringe: 10ml Syringe: 20ml Syringe: 30ml Syringe: 50/60ml Syringe:	150ml/h 300ml/h 600ml/h 900ml/h 1500ml/h

Running Interface

Syringe Size & Brand

Infusion Mode

Rate

Volume Infused

Status

Pressure Sensor & Battery

VTBI (Volume To Be Infused)

Time Remaining on Infusion

Sound Volume & Time & Date

Power (Not) Connected

Indicator Light

Flashing Green	Running Properly
Solid Yellow	Low Priority Alarm
Flashing Yellow	Medium Priority Alarm
Flashing Red	High Priority Alarm

Alarms & Solutions

Pressure Indicating Icon	Red vertical line indicates the occlusion level setting in the system If pressure increases in administration set, the pressure indicating icon will show a green bar When the green wave reaches the red vertical line, the syringe pump will give occlusion alarm
Pressure Sensor	Pressure Sensor is Defective Please contact PractiVet
Occlusion	Press SILENCE key to clear the alarm signal Clear occlusion
Battery Icon	Red-yellow-green wave alternately appearing indicates the battery is charging The battery icon indicates status of battery remaining capacity
Low Battery	Battery icon shows only 1 grid when operating on battery Press SILENCE key to clear the alarm If AC power cord is not plugged in, the alarm will not clear The pump has enough battery to infuse ~30 minutes at 10.0 ml/h
Battery Exhaust	Battery icon shows blank when operating on battery charge Plug AC power cord to clear the alarm If AC power cord is not plugged in, the alarm cannot clear & will continue to alarm for at least 3 minutes

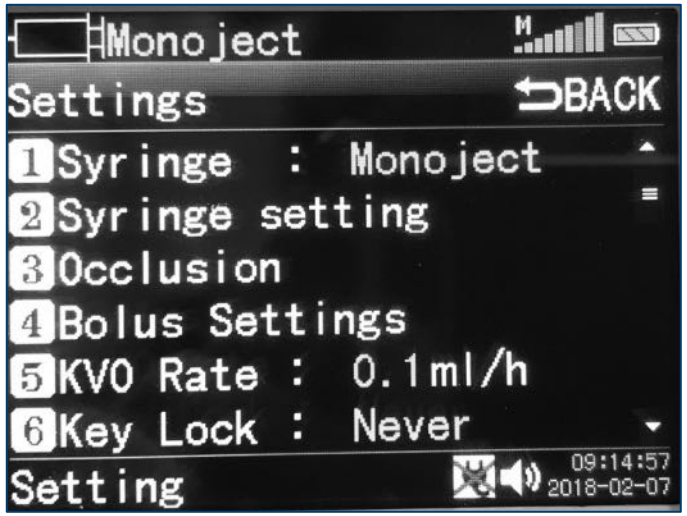
Specifications

Handle Off	The end of syringe arm is not correctly installed into barrel or plunger Press SILENCE key to clear the alarm signal Re-install the syringe correctly
Syringe off	During operation, the syringe arm does not compress on syringe Press SILENCE key to clear the alarm signal Re-install the syringe correctly
Near Empty	The syringe is close to empty Press SILENCE key to clear the Alarm signal will still display on the interface
Almost Done	Infusion VTBI near completion Press SILENCE key to clear the alarm signal Alert will remain on pump screen=
Finished	The VTBI is completed Press SILENCE key to clear the alarm
Use Battery/AC Fail	AC power cord is not plugged in or connected to syringe pump Press SILENCE key or connect to AC power to silence alarm
No Operate	The pump has been idling for at least 2 minutes Press any key to clear the alarm
0XE Error	Reboot pump & try again. If problem persists please contact your PractiVet product specialist

System Settings

When the main menu, press the corresponding number key to enter system setting menu
Use the up arrow (8) key to go to previous page, and use the down arrow (9) key to go to next page

Syringe	Select syringe brand
Syringe Setting	Calibrate syringe
Occlusion	The system default setting is middle level When infusing the viscous liquid on low occlusion level the occlusion alarm may trigger If necessary, adjust setting to a higher occlusion level Low: 40-80kPa Middle:80-120kPa High:120-160kPa
Bolus Setting	Change programmed bolus that will run when pushing the BOLUS key during infusion
KVO Rate	Keep Vein Open –Prevents catheter occlusions by continuing infusion at a pre-set low rate
Key Lock	Can lock keypad to prevent accidental changes Example: If 'after 3 min' is selected, the key pad will lock after 3 minutes of being idle To unlock the keypad, press Enter key (#2) together

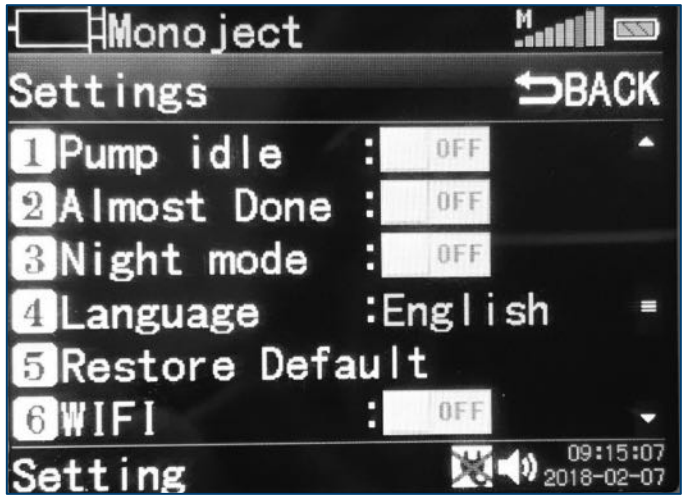


System Settings

Sound	Volume adjustment
LCD	Change brightness & amount of idle time before screen dims Example: If ‘3 min’ is selected, the LCD will darken after 3 minutes of being idle Screen will illuminate if any button is pressed
Key Sound	The pump will beep every time a key is pressed
Date & Time	Date & time adjustments
Pressure	Change pressure baseline - Do not change unless instructed by a PractiVet product specialists
Infusion Log	Access infusion history

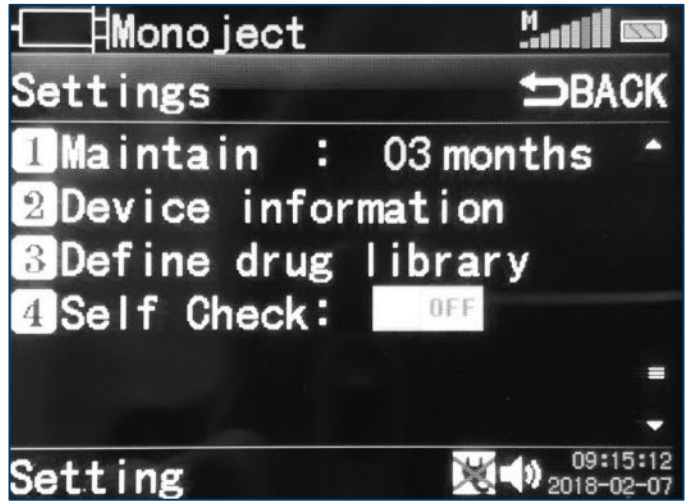
System Settings

Pump Idle	Alarm will sound when the pump is idle for 2 minutes when infusion is not running
Almost Done	Pump will alarm 3 minutes before infusion completion
Night Mode	When ON the screen will dim after 1 minute if being idle & the top indicator light will be off during infusion Visual & audible alarms will still go off when pump is in night mode
Language	Change language setting
Restore Default	Do not restore default unless instructed by a PractiVet product specialists
Wi-Fi	Wi-Fi capable – ask your PractiVet product specialist for more details



System Settings

Maintain	Set maintenance reminder
Device Information	Access software version data
Define Drug Library	Add or remove drugs from drug library
Self-Check	The syringe pump will show the system self-check when powered on



Maintenance Recommendations

Daily maintenance

- ✓ Clean pump body with a damp cloth
- ✓ Do not use solvents like xylene or acetone or other similar solvents which may corrode the syringe pump
- ✓ Be sure the pole clamp is secure before every infusion

Maintenance during operation

- ✓ Clean pump arm and surrounding areas
- ✓ Liquid may drip onto syringe pump during infusion process.
- ✓ Certain medications may erode the pump body
- ✓ Clean the Syringe Pump after every infusion

Periodic inspection

- ✓ Check pump body
- ✓ Ensure each button is flexible and effective
- ✓ Check the power cord and AC port
- ✓ Check infusion accuracy every 2 months

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Syringe Pump

"Partnering with you to bring new technology, quality, reliability, and service above & beyond"