

Micro-Infusion Syringe Pump

User's Manual

C **€**₀₁₉₇ **ISO 13485** **ISO 9001**

Micro-Infusion Syringe Pump Features

- ✓ **100 ml Syringe Capacity**
100 ml syringe capability allows infusing larger volumes over time without changing syringes
- ✓ **Broad Infusion Capability**
Delivers general fluids, blood, fluid nutritions
- ✓ **Micro to Macro Infusion**
Delivers precise infusion at rates from 0.1 to 300 ml/hr
- ✓ **Excellent Linearity Performance**
Continuously linear infusion at both low and high infusion rate for controlled, precise, and consistent medication delivery.
- ✓ **Alarms/Alert Light**
4 alarm modes employing both light and audible alarms

Table of Contents

General Information.....	2
Precautions	2
Specifications.....	3
Keypad Description.....	4
Operation Procedures	6
Complete Package Contents.....	8
Storage	8

General Information

This Micro-Infusion Syringe Pump is a conventional device for specialty practices, universities, and general practices. A wide variety of clinical departments, such as internal medicine, cardiology, and oncology require being equipped with this type of syringe pump. This pump is mainly used for intravenous/arterial infusion, anesthetic injection, IV antibiotics, cancer therapy, etc.

This Micro-Infusion Syringe Pump offers a reliable alternative for fluid control, especially suitable for long-term, micro fluid and precise injections.

Precautions

SAVE THIS MANUAL FOR YOUR FUTURE REFERENCE!


IMPORTANT: USER SHOULD READ THIS ENTIRE MANUAL BEFORE OPERATING THIS MICRO-INFUSION SYRINGE PUMP. KEEP THIS MANUAL FOR YOUR FUTURE REFERENCE!

WARNINGS:

- DO NOT USE A PUMP, SYRINGE, OR ACCESSORY THAT SHOWS ANY SIGN OF DAMAGE.
- CHECK THE "DOSE CALIBRATION" SWITCH LOCATED ON THE BOTTOM OF THE PUMP EVERY TIME USE A NEW/DIFFERENT SIZE/BRAND SYRINGE. USER MUST CALIBRATE THE PUMP BEFORE USE TO INSURE THE ACCURACY OF INFUSION.
- 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.
- BEFORE CONNECTING THE SYRINGE TO THE PATIENT, USER MUST PRIME THE SYRINGE AND EXTENSION TUBE TO PREVENT INFUSING AIR TO THE PATIENT.
- 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.

- ONLY USE THE 3-PIN AC (MAINS) POWER CORD INCLUDED WITH THIS PUMP. USE OF ANY OTHER CORD PRESENTS A HAZARD OF SHOCK OR DEATH TO PATIENT. THE AC MAINS OUTLET MUST BE PROPERLY GROUNDED (EARTHED) TO PREVENT SHOCK HAZARD TO PATIENT. MAINS OUTLET AND GROUND (EARTH) SHOULD BE TESTED ON A REGULAR BASIS TO ENSURE PATIENT SAFETY. OPERATE AWAY FROM STRONG MAGNETIC FIELDS (LARGE EQUIPMENT OR BIG MOTORS).
- THE PUMP WILL GO THROUGH A SELF DIAGNOSTIC PROGRAM WHEN THE POWER SWITCH IS TURNED ON. NORMALLY A “0.1” IS SHOWN IN THE DISPLAY. THIS MEANS THE PUMP IS OPERATING PROPERLY. IF AN “ERR” IS SHOWN IN THE DISPLAY, REBOOT THE PUMP. IF THE ERROR CONDITION STILL EXISTS, DO NOT CONTINUE OPERATION AND CONTACT DISTRIBUTOR OR MANUFACTURER FOR TECHNICAL SERVICE IMMEDIATELY.

Specifications

Protection Against Electric Shock	 Type BF
Mode of Operation	Continuous
Degree of Protection Against Ingress of Fluids	Drip-Proof IPX1
Acceptable syringe sizes	20ml, 50/60ml, 100ml
Flow-rate ranges	0.1ml/hr-300ml in 0.1ml/hr increments
Battery operation at a flow rate of 50 ml/hr, assuming fully charged battery: 4 hours	

Syringe Flow Rates	
Syringe Size (ml)	Flow Rate (ml/hr)
20	0.1 - 150
50 / 60	0.1 - 300
100	0.1 - 300

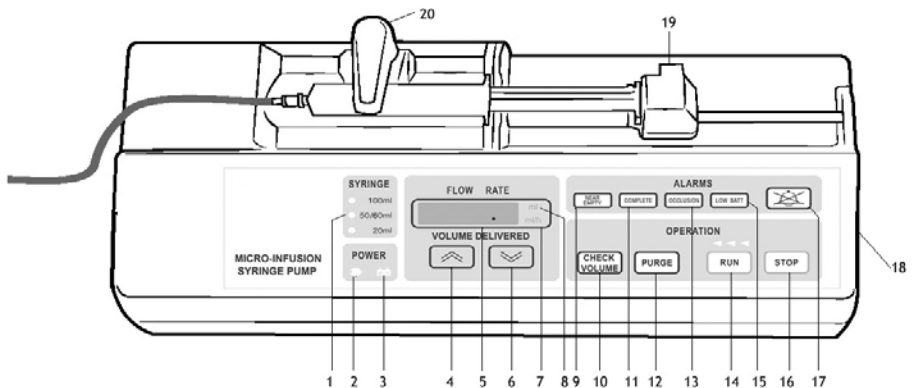
Infusion Accuracy (including syringe accuracy)	±5%
Operating Temperature	41-104 ^o F (5 - 40 °C)
Relative Humidity	80% max.
Power Requirements (110V version)	110VAC±10% 60Hz 25VA or 12VDC±5%
Power Requirements (220V version)	220VAC±10% 50Hz 25VA or 12VDC±5%
Dimensions	Approx. 13" X 5.5" X 3.5" (335×142×120 mm)
Weight	5.5 pounds (2.5 kg)

This Micro-Infusion Syringe Pump uses a precision motor to inject medication and desired fluids into the patient. Among the features provided by this pump are:

- Self-Test, Self-Diagnoses when the pump is turned on the first time
- Audible and Visual Alarms of “Near Empty”, “Complete”, “Occlusion”, and “Low Batt”
- Wide range of compatible syringe: 20ml, 30ml, 50ml, 60ml, 100ml
- Wide flow rate range: 0.1ml/hr-300ml in 0.1ml/hr increments
- Waterproof ergonomic touch control panel





Keypad Description

A. Control Panel









1 Syringe size indicator	11 COMPLETE alarm indicator
2 AC POWER indicator	12 RAPID (PURGE)
3 BATTERY POWER indicator	13 OCCLUSION alarm indicator
4 INCREASE rate	14 RUN
5 Numeric display	15 LOW BATTERY alarm indicator
6 DECREASE rate	16 STOP
7 Flow rate	17 MUTE
8 Delivered volume	18 ON/OFF switch
9 NEAR EMPTY indicator	19 Syringe plunger head
10 CHECK	20 Syringe securing bar

B. Keypad Description

	<p>INCREASE rate - Increases flow rate. Press and hold to change the rate faster.</p>								
	<p>DECREASE rate - Decreases flow rate. Press and hold to change the rate faster.</p>								
<p>CHECK</p>	<p>CHECK VOLUME - Press and hold in RUN mode to display the volume delivered. Release to display the preset flow rate.</p>								
<p>PURGE</p>	<p>PURGE - Only functions in STOP mode. Press to run the pump at high speed expelling air out of the syringe or to purge the syringe. Rapid purging rate varies according to syringe size:</p> <table border="0" data-bbox="447 786 880 879"> <thead> <tr> <th><i>Syringe size (ml)</i></th> <th><i>Max. flow rate (ml/hr)</i></th> </tr> </thead> <tbody> <tr> <td>20</td> <td>150</td> </tr> <tr> <td>50/60</td> <td>300</td> </tr> <tr> <td>100</td> <td>300</td> </tr> </tbody> </table>	<i>Syringe size (ml)</i>	<i>Max. flow rate (ml/hr)</i>	20	150	50/60	300	100	300
<i>Syringe size (ml)</i>	<i>Max. flow rate (ml/hr)</i>								
20	150								
50/60	300								
100	300								
 <p>RUN</p>	<p>RUN - Press RUN button to start infusion; the LED indicator lights flash.</p>								
<p>STOP</p>	<p>STOP - Press to stop pump.</p>								
	<p>MUTE - Press to silence the alarm buzzer while 'NEAR EMPTY', 'COMPLETION' OR 'OCCLUSION' alarm is sounded. Audible and Visual Alarms</p>								

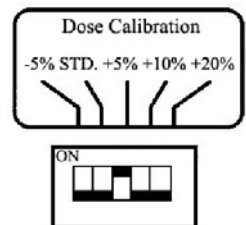
C. Audible and Visual Alarms

	<p>NEAR EMPTY - When there is approximately 5 ml of medication left, an audible and visual alarm is activated. Press the MUTE button to silence the alarm buzzer.</p>
	<p>COMPLETE - When infusion is complete, the operation stops and audible and visual alarms are activated. Press MUTE button to silence the alarm buzzer.</p>
	<p>OCCLUSION - Whilst occlusion occurs, operation stops. Press MUTE button to silence the alarm buzzer. Infusion only continues after the alarm condition is cleared.</p>
	<p>LOW BATT - Audible and visual alarms are activated if the battery runs low on charge. To clear the alarm, plug the power lead into an appropriate AC wall outlet. The pump will continue to operate while recharging the battery.</p>
	<p>BATTERY POWER indicator light (orange) is on to indicate that built-in battery power is in use.</p>
	<p>AC POWER indicator light (green) is to indicate the pump is connected to mains AC power and is charging the battery.</p>

Operation Procedures

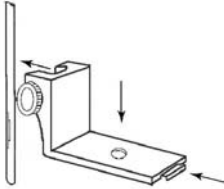
- CHECK THE “DOSE CALIBRATION” SWITCH LOCATED ON THE BOTTOM OF THE PUMP EVERY TIME YOU USE A NEW/DIFFERENT SIZE/BRAND SYRINGE. “Dose Calibration” switch is located on the bottom of the pump. This switch can be used to offset variances between syringes from different manufacturers as follows:

BD			Monoject		Terumo	
20ml	30ml	50/60ml	20ml	50/60ml	20ml	50/60ml
+20%	STD	+5%	+5%	+20%	+10%	STD



IMPORTANT: IMPORTANT: ONLY ONE SWITCH AT A TIME CAN BE SET IN THE 'UP' POSITION. IF TWO OR MORE SWITCHES ARE SET IN THE 'UP' POSITION, THE PUMP WILL REVERT BACK TO THE 'STD' SETTING

2. Pump can be used either on any horizontal surface or on the IV pole with pole clamp.



3. Plug power cord into a wall outlet or use the DC 12V built-in battery power. (If using battery power, charge battery at least 10 hours before use. A fully charged battery can continuously support running up to 4 hours at a flow rate of 50 ml/hr.)
4. Turn the power switch on. ON/OFF switch is located at the right side of the pump. When initialized, the pump will go through a Self Diagnostic program. After the pump passes the Self Diagnostic tests, "0.1" will appear on the display. If 'ERR' shows on the display the pump did not pass the power-on test and should not be used until the malfunction is corrected.
5. Press "Number Set Key" (up & down arrows) to set desired flow rate.
6. Load syringe with medication or desired fluid. Lift up the Syringe Securing Bar and rotate right 90°. Place the syringe into the bed. Be sure to insert the nozzle into the syringe slot. Then press the release button on the plunger driver block and slide the driver block into position so that the end of the syringe plunger can be placed into the slot in the driver block. Make sure the syringe plunger is properly seated in the plunger driver block. Turn the Syringe Securing Bar to the left 90 degrees to secure the syringe barrel. Make sure the syringe barrel is secure. Press and hold the PURGE button to purge air from the syringe and associated tubing before connecting to patient.
7. Press "RUN" to start infusion.

Complete Package Contents

- a) Power cord (AC mains): one piece
- b) IV pole clamp: one piece
- c) DC 12v 2-pin plug: one piece

Storage

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

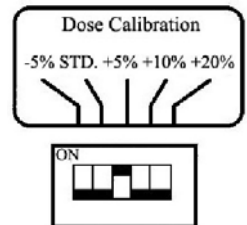
IMPORTANT

CALIBRATE FOR DIFFERENT SYRINGE !

CHECK THE “DOSE CALIBRATION” SWITCH LOCATED ON THE BOTTOM OF THE PUMP EVERY TIME YOU USE A NEW/DIFFERENT SIZE/BRAND SYRINGE. “Dose Calibration” switch is located on the bottom of the pump. This switch can be used to offset variances between syringes from different manufacturers as follows:

BD			Monoject		Terumo	
20ml	30ml	50/60ml	20ml	50/60ml	20ml	50/60ml
+20%	STD	+5%	+5%	+20%	+10%	STD

User must do the accuracy test for OTHER brand/size syringe before use to ensure the accuracy !!!



LIMITED WARRANTY

The Syringe Pump has been carefully manufactured from the highest quality components. The pump is guaranteed against defects in material and workmanship for twelve (12) months from date of purchase by the original purchaser. Manufacturer's obligation, or that of its designated representative under this Limited Warranty, shall be limited, at our option, to repairing or replacing the pump, which upon examination, is found to be defective in material or workmanship. The repair or replacement of any product under this Limited Warranty shall not extend the above mentioned Warranty period.

All repairs under this Limited Warranty should be undertaken only by qualified, trained service personnel. In the event that a pump is found to be defective during the warranty period, the purchaser shall notify manufacturer or its designated representative within thirty (30) days after such defect is discovered. The defective pump should be sent immediately to manufacturer or its designated representative for inspection, repair or replacement.

Material returned should be properly packaged to avoid severe pump damage.

This Limited Warranty shall not apply to defects or damage caused, wholly or in part, by negligence, spilt fluids, dropping of the pump, misuse, abuse, improper installation or alteration by anyone other than qualified, trained personnel; or to damage resulting from inadequate packaging in returning the pump.

This Limited Warranty is the sole and entire warranty pertaining to manufacturer's products and is in lieu of and excludes all other warranties of any nature whatsoever, whether stated, or implied or arising by operation of law, trade, usage or course of dealing, including but not limited to, warranties of merchantability and warranties of fitness for a particular purpose. Purchaser expressly agrees that the remedies granted to it under this limited warranty are purchaser's sole and exclusive remedies with respect to any claim of purchaser arising under this Limited Warranty.