

DARAY[®]

HEALTHCARE PRODUCTS



N103

MICRO-INFUSION SYRINGE PUMP INSTALLATION AND OPERATING MANUAL

DARAY[®]

HEALTHCARE PRODUCTS

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1 Description

Daray's N103 Syringe Pump is a digitally controlled device for use in most types of intravenous/arterial infusion. It automatically senses the size of syringe fitted to it and controls flow rate rather than simply infusion time.

The Pump operates from an in-built battery which charges when the unit is connected to the electrical mains and powers the unit in the event of mains failure; alternatively, the unit can be fed from an external 12V supply.

N103 has extensive alarms and simple and clear display and controls protected by a waterproof membrane. The Pump automatically activates Self-Test, Self-Diagnosis, and Error Alert procedures when it is switched on.

The following accessories should be delivered with the Pump:


Mains plug to IEC power cable
Stand clamp
12v DC power supply
20 x giving sets
A stand is available separately.

2 Precautions

Use only an IEC 3-core power cable to connect mains electricity to the unit.

Do not use in close proximity to strong magnetic fields such as can be produced by large electric motors.

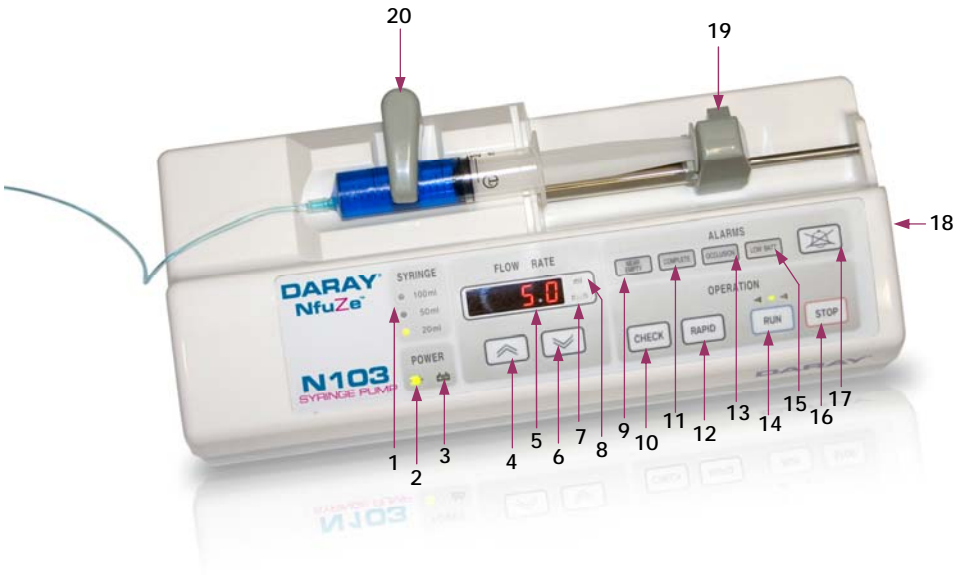
3 Specifications

Protection Against Electric Shock	 Type BF
Mode of Operation	Continuous
Degree of Protection Against Ingress of Fluids	Drip-Proof IPX1
Acceptable syringe sizes	20ml, 50ml, 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	




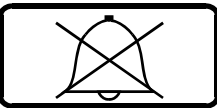
Syringe Flow Rates	
Syringe Size (ml)	Flow Rate (ml/hr)
20	0.1 - 150
50	0.1 - 300
100	0.1 - 400

Infusion Accuracy (including syringe accuracy)	±5%
Operating Temperature	5 - 40°C
Relative Humidity	80% max.
Power Requirements	220VAC 50Hz 25W or DC 12V 25W
Dimensions	335×142×120 mm
Weight	2.5 kg







4 Controls



1	Syringe size indicator	11	COMPLETE alarm indicator
2	AC power indicator	12	RAPID (PURGE)
3	Built-in battery 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 pump head
10	CHECK	20	Syringe securing bar

	<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 - Press and hold whilst in RUN mode to display the volume delivered. Release to display the preset flow rate.</p>								
<p>RAPID</p>	<p>RAPID - Only functions in HOLD 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 data-bbox="482 794 934 900"> <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</td> <td>300</td> </tr> <tr> <td>100</td> <td>400</td> </tr> </tbody> </table>	<i>Syringe size (ml)</i>	<i>Max. flow rate (ml/hr)</i>	20	150	50	300	100	400
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20	150								
50	300								
100	400								
 <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>								

5 Alarms and Indicator Lights

	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.
	COMPLETE - When infusion is complete, the operation stops and audible and visual alarms are activated. Press MUTE button to silence the alarm buzzer.
	OCCLUSION - Whilst occlusion occurs, operation stops. Press MUTE button to silence the alarm buzzer. Infusion only continues after the alarm condition is cleared.
	LOW BATT - Audible and visual alarms are activated if the battery runs low on charge. To clear the alarm, plug the power lead into a mains socket. The pump will continue to operate whilst recharging the battery.
	Battery indicator light (orange) is on to indicate that built-in battery power is used.
	AC power indicator light (green) is to indicate the pump is connected to mains AC power and is charging the battery.

6 Operation

Note: The battery must be charged for at least 10 hours before use.

The syringe pump can be operated either fixed to a drip-stand using the clamp provided or stood on any horizontal surface.

Plug the IEC socket of the mains lead into the pump, and the mains plug into a standard 13A socket. Alternatively, feed the unit with a 12V DC supply.

The pump may be operated from its built-in battery. The battery is automatically charged when the unit is connected to the mains.

Turn the power switch on. The pump will go through a self-diagnosis check when power switch is turned on. Normally 'Q.' is shown on the display; this means the device is operating properly. If 'Err' is shown in the display, turn the pump off and on again. If an error condition persists, do not use the syringe pump and report the problem.

Press the INCREASE/DECREASE buttons to set the desired flow rate.

Load syringe with medication. Lift up the syringe securing bar and rotate clockwise 90°.

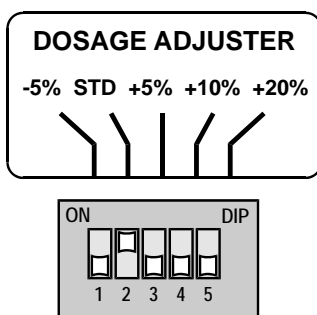
Place the syringe into the bed. Be sure to insert the nozzle into the syringe slot. Then press and hold the secure button on the pump head so that the syringe plunger can be placed into the slot in the head.

Rotate the securing bar anticlockwise by 90° to secure the syringe.

Press and hold "RAPID" button to purge the syringe and the giving set.

Press "RUN" to start infusion.

CAUTION: Failure to seat the syringe properly may cause inaccurate infusion. The alarm sounds whenever the user selects the maximum flow rate for a particular syringe size.



"Dose Calibration" switches are located on the bottom of the device - see Figure 1). These switches can be used to offset variances between syringes from different manufacturers. Normally, the 'STD' switch should be selected.

To clean the pump, use a damp (NOT wet) cloth or sponge. Do not immerse pump or power cable into water or other cleaning solution.

7 Storage

This product should be stored in an environment with ambient temperature range of -10 - +55°C, relative humidity below 93%, and air pressure 500 - 1060 hpa.

Do not store in close proximity to corrosive vapour or harmful substances.

Returns Policy

IMPORTANT!

Before returning your item, you must call us on 0870 199 4299

We want you to be completely satisfied with your purchase. If you need to return goods purchased from DARAY Ltd, please read the following information carefully.

The DARAY Ltd returns policy provides guidance on when you can return goods we have supplied, and what you can expect from us once you do. To see our detailed returns policy and procedure visit www.daray.co.uk/returns

TYPE OF RETURN	REMEDY
DAMAGED GOODS OR DOA* Goods which are physically damaged on delivery, or which do not function.	We must be notified within 24 hours of receipt.
GOODS DEVELOPING A FAULT Goods which have developed a fault within the warranty period.	Within 14 days of delivery we will replace the item as DOA*. If the fault develops after 14 days, but within the warranty period, we will initiate the returns procedure.
NON WARRANTY Goods which have developed a fault outside the warranty period.	If a fault develops outside the warranty period, we will initiate the returns procedure.
OTHER Any situation which is not covered by the above.	We will try to help, but we cannot normally offer a refund.

*DOA - dead on arrival

For additional clarification, please refer to our terms and conditions at www.daray.co.uk/terms.

In a small number of cases, we may determine that a replacement would not work any better than the original product we supplied. In such cases we will only offer a refund rather than a replacement for qualifying returns.

Replacement bulbs are not eligible for returns, unless they are faulty or damaged.

Spare parts ordered on our website or from supplied part codes are not be eligible for credit. We will accept returns and exchange for the correct item.

If you have incorrectly ordered a product and it is unopened and in perfect condition, within seven days of the original order you may order the correct product and receive a full credit for the returned item. In all other cases, items returned for credit are subject to a 25% restocking fee.

If you send us goods that do not qualify for return, you will invalidate your claim to any refund, and you will be obliged to compensate DARAY Ltd for the cost of return postage and any other reasonable costs incurred processing the goods.

Your statutory rights are not affected.

Warranty

TERMS AND CONDITIONS OF WARRANTY

1. To qualify for this warranty you must register on www.daray.co.uk or return to Daray Ltd (Daray) the duly completed warranty-registration form accompanying the product.
2. Daray warrants this product (excluding lamp) against faulty material and workmanship during the period of the warranty. The period of warranty is the period stated on your warranty card and commences on the date of purchase of the product. In the event that the product is not in good working order Daray will provide, during the warranty period, a free repair service within the United Kingdom. The warranty is subject to proof of purchase being provided; therefore, you should retain your original receipt.
 - 2.1 The repair service consists of the provision of spare parts and/or replacement products (at Daray's discretion) which will be provided on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced spare parts and products shall become the property of Daray.
 - 2.2 Daray's only obligation under this warranty is the provision of the service as set out above.
 - 2.3 All products are returned to Daray at the customer's cost and risk. Products to be returned should be adequately packed. For the address to send returns to please visit www.daray.co.uk
3. Daray's arrangements for providing service provided under this warranty may include the use of sub-contractors.
4. This warranty does not cover damage or defects in the Product caused by or resulting from:
 - Wilful neglect or negligence by anyone other than Daray;
 - Improper use, storage or handling of the product;
 - Use of non-Daray approved parts (such as replacement lamps) not compatible with the Product;
 - Fire, accident or disaster;
 - Use of non-Daray modifications other than in accordance with Daray's instructions;Attachment of fittings and accessories not approved by Daray;
Repairs, modifications carried out by service personnel not approved by Daray;
 - Damage caused by chemical corrosion from cleaning agents not approved by Daray.
 - Failure to use or install the product in accordance with the manufacturer's instructions.
5. Nothing in this warranty shall have the effect of restricting or excluding the liability of Daray in respect of:
 - a) Death and personal injury caused by the negligence of Daray, or for fraud;
 - b) Under the *Consumer Protection Act 1987* to a person who has suffered damage caused by a defective product or to a dependant or relative of such a person;
 - c) Direct damage to your property caused by the proven negligence of Daray.
6. This agreement does not give any rights other than those expressly set out above and in particular, Daray will not be responsible for any loss of income, profits or contracts or any direct or indirect consequential loss, damage caused to or suffered by the purchaser as a direct result of this agreement.
7. This warranty is offered (subject to these terms and conditions) in addition to, and does not affect your statutory rights.
8. Daray may disclose your details and other personal information to companies within the Daray group including any subsidiary company or sub contractor of Daray for the purposes of performing our obligations hereunder.
9. You must not resell outside the UK any products supplied by Daray and covered by the *Export of Goods (Control) Order 1992* (or any law that replaces it) without obtaining all necessary licences. You also agree not to sell the product in the UK if you know or think that the person buying the product intends to export it without getting the necessary licences. You agree to impose similar conditions to these on anyone you sell the product to.
10. These conditions shall in all respect be governed and construed in accordance with English law and the exclusive jurisdiction of the English courts.

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WARRANTY REGISTRATION
TO VALIDATE YOUR WARRANTY
PLEASE COMPLETE IN BLOCK CAPITALS
AND RETURN IN A WINDOWED DL ENVELOPE
TO OUR FREEPOST ADDRESS

ALTERNATIVELY REGISTER ONLINE AT WWW.DARAY.COM



1 YEAR WARRANTY

NAME:
COMPANY:
EMAIL:
PHONE:
FAX:

ADDRESS:

PURCHASED FROM:

DATE OF PURCHASE:

Freepost Plus RRAS-YGXE-SLBC
Daray Ltd
Marquis Drive
SWADLINCOTE
DE12 6EJ

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PRODUCT:
SERIAL No:

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HEALTHCARE PRODUCTS

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