



 **medicina** Ref: P900



*The P900 enteral syringe pump
has been designed to deliver small volumes
of enteral feeds, accurately and safely,
using oral enteral syringes*

enteral syringe pump

 **medicina**

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0 1 2 0

**instruction
booklet**





important safety precautions


users

The pump should only be operated by healthcare professionals and carers who have been trained in functions and indications of the pump. The pump is suitable for the delivery of enteral feeds and breast milk in hospitals but may also be used domestically under the supervision of a healthcare professional.

connections

It is important to check the pump syringe and any extension line are correctly fitted to an enteral feeding device only, normally a nasogastric tube, before the pump is operated. It is also important to check all connections between syringes, sets and tubes are secure. The correct gastric position of the feeding tube should also be confirmed before every feed delivery.

syringes

The only syringes which will operate in this pump are marked "MEDICINA" or "SUPERLOCK" and are supplied by Medicina Ltd or its authorised distributors. All other syringes are not recognised by sensors on the pump and will not function. It is also important to check the automatic visual syringe size light on the pump and confirm that this matches the size of the syringe used. All syringes may be used up their maximum volume except the PE60 60 ml syringe which has a maximum volume of 50mls only. All syringes are single use only . Syringes and sets should not be connected to the patient until the pump is ready, as an incorrectly fitted syringe has the potential to deliver uncontrolled siphoned feed to the patient. Syringes, pumps and sets are all latex free and DEHP free.

operation

The pump should only be operated under the following environmental conditions +50°C – 40°C and an atmospheric pressure of 86-106 kPa and a relative humidity of 20%-90%. The pump should also be stored in a dry place and care should be taken not to drop or vibrate the pump.

electrical

The pump should only be operated using a standard AC power supply 100-240V @ 50-60Hz using the authorised power cord. The power cord should be protected from bending and any heat source. It should be discarded if it becomes damaged in any way. The pump should be unplugged when not in use. The pump should only be operated using the battery for transfers and only until the low battery alarm sounds. The battery should then be recharged.

maintenance

The pump body should be cleaned in line with hospital policies or with a damp cloth or an alcohol type wipe (75% alcohol*) No other chemicals should be used to clean the pump. The pump should not be repaired or opened by anyone other than authorised Medicina Staff. This will void the warranty. All defective pumps should be returned to Medicina Ltd or to an authorised service centre or distributor.

*Alcohol wipes should not be used on the display screen.

general description

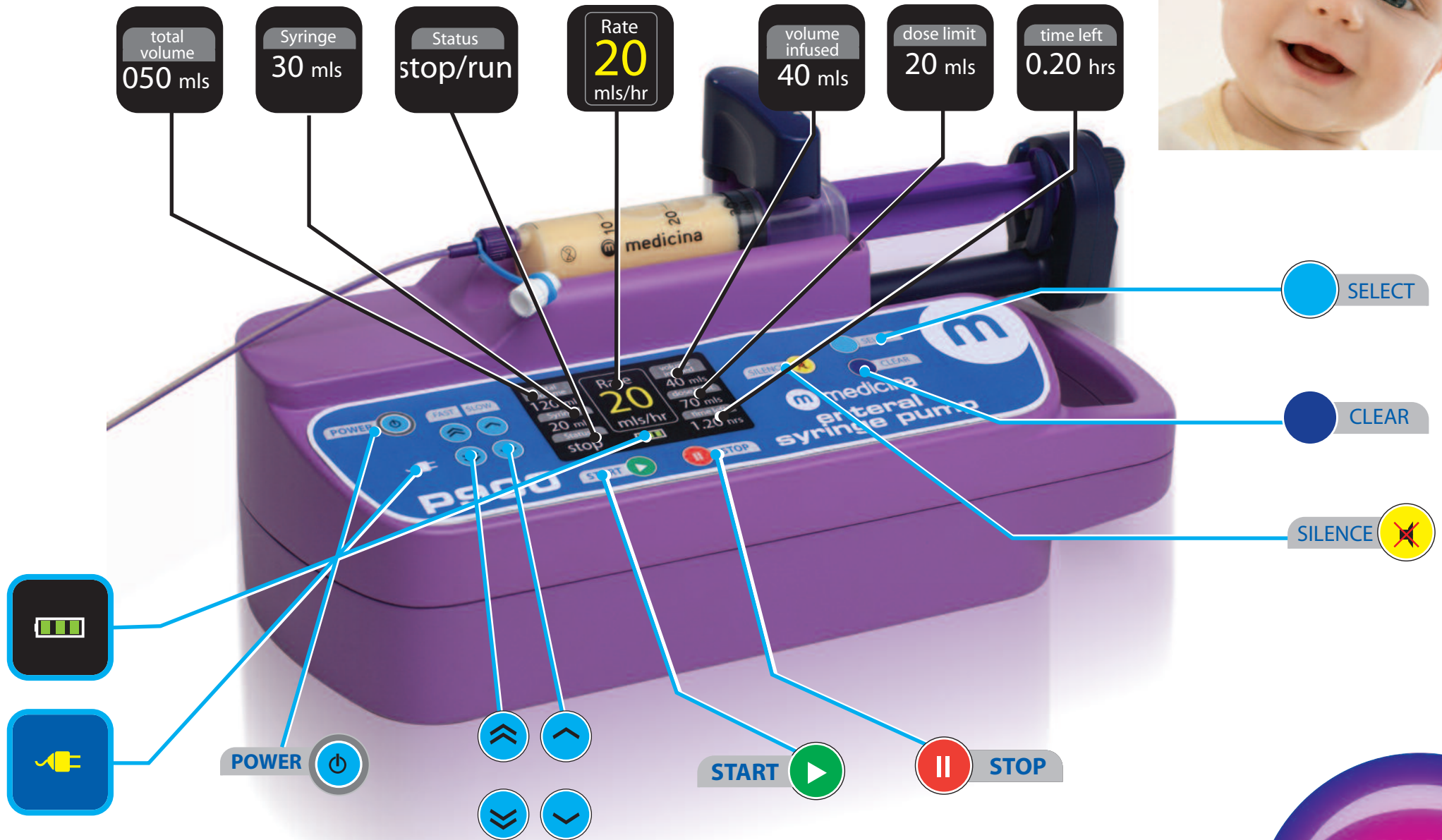
The P900 enteral syringe pump has been designed to deliver small volumes of enteral feeds, accurately and safely, using enteral syringes. The pump is indicated for the delivery of enteral nutritional support in small volumes to neonates and paediatric patients. The pump is part of a complete range of equipment which has been carefully put together to maximise patient safety. The non-IV compatible syringes, feeding tubes and accessories provide a comprehensive feeding system.

An important feature of the pump is that only "MEDICINA" syringes will operate in the pump. All other syringes are incompatible. Many current syringe pumps can accommodate both enteral and intravenous syringes. This poses a serious risk of hazard to the patients because Intravenous syringes can be accidentally filled with enteral feeds and connected to central lines. These misconnections are not possible with the use of this pump because the lines and syringes which it uses cannot be connected to central lines. This offers a unique additional safety feature for enterally fed patients.

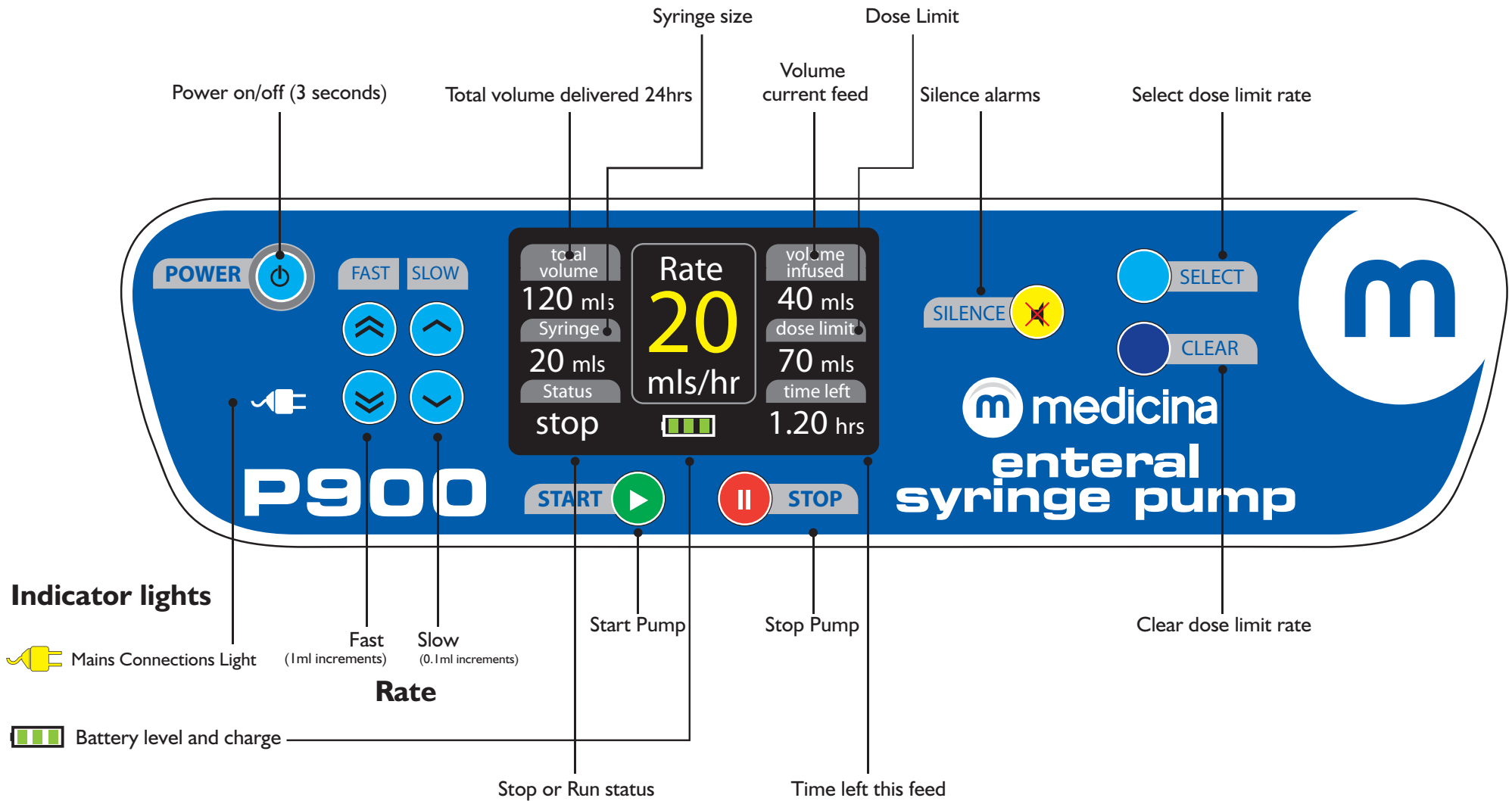
The P900 enteral syringe pump has several other useful safety features. Several sensors monitor the delivery, providing comprehensive visual and auditory alarms. Although the pump is simple to use, the electronics are as sophisticated as more expensive intravenous syringe pumps. Users will find the P900 pump easy to use and it will safely and accurately provide the nutritional support needed by their patients.



P900 Quick Guide



P900 Basic Controls



Operation

Securing the pump

Select a suitable position for the operation of the pump before inserting the power cable. The pump should be used in a horizontal position either on a table or on a drip stand. A pole clamp is provided with the pump. The black plate is screwed into the underside of the pump with the silver clamp facing the rear of the pump. The second screw is used to secure the whole assembly to the drip stand.

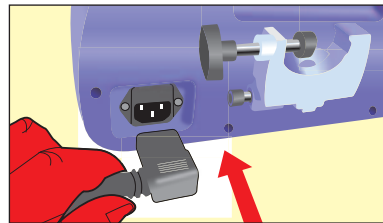
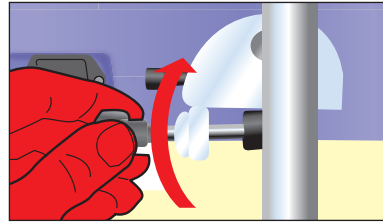
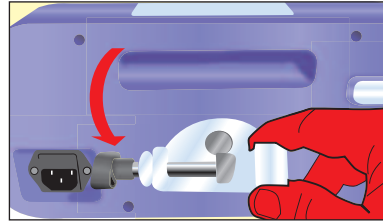
Caution Never mount the pump so high on the drip stand that it becomes unbalanced or unstable.

Power

When the pump is secured the power cable should be plugged into the mains supply and the rear of the pump.

Press the power button for 3 seconds and the AC Power status light should come on. The battery level status light also shows the level of charge in the battery.

The pump will then self test all the circuits and all lights will flash once before the pump is ready to use. An instructions screen illustrates the necessary user checks and then the user presses start to display the main operating screen. The pump is turned off by pressing the power key for 3 seconds.

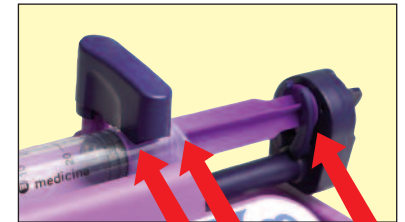
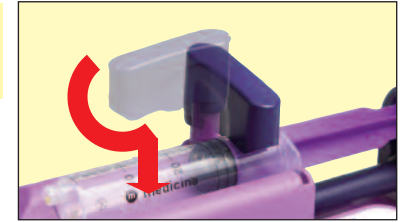


Syringe installation

Caution Only "MEDICINA" or "SUPERLOCK" single use syringes may be used in this pump.

A suitable syringe for the volume to be delivered is selected and connected to an extension set. All connections should be checked. Both are then primed aseptically by using the syringe. To insert the syringe into the pump the syringe clamp is raised and rotated. The syringe barrel flanges are inserted into the grooves on the syringe bed and the plunger flanges are inserted into the syringe drive mechanism. The drive mechanism should be adjusted so it is tight on the syringe plunger. Fitting adjustments can be made by pressing the mechanism release button on the side. When the syringe is correctly fitted the syringe clamp can be rotated back into position. It is important to check that the automatic syringe size indicator light matches the syringe size. The pump will then check that a correct Medicina syringe is fitted. If an incorrect syringe is fitted then an alarm "Incorrect syringe will be seen on the screen.

Caution the 60ml syringe PE60 has a maximum volume of 50mls and cannot be fitted into the pump with a higher volume than 50mls.



Set Delivery Parameters Dose Limit and Rate

The dose limit and rate are set by pressing the select key, which highlights each parameter in turn, the fast or slow rate buttons are used to adjust the limit and rate. The fast button increases in whole millilitres and the slow in 0.1 millilitre increments. Both operate continuously when held down continuously. When the correct dose limit and rate are set press stop and then select whether to save the adjusted settings. Rates are locked during delivery. Delivery rates start at 0.1 ml/Hour up to 100mls/Hour in 0.1ml increments for all sizes of syringes.



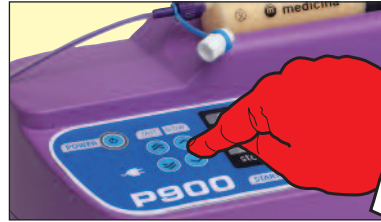
SELECT- DOSE LIMIT MLS • SELECT- RATE - 20MLS/HR • STOP- SAVE CHANGES -START



Clear Volume Infused and Total volume

The volume delivered during 24hrs which may be several feeds is recorded by the pump. This can be displayed by pressing the select button. The "volume infused" shows the total volume given for just that feed and the "total volume" shows the volume delivered in 24hrs. At the beginning of a new day the total volume and the volume infused should be cleared, in the stop mode, by pressing the clear button. The volume infused is cleared by a short press and the total volume by holding the clear button for a few seconds.

STOP - CLEAR - VOLUME INFUSED
CLEAR HOLD - TOTAL VOLUME



Start Delivery

Caution it is important to check the pump syringe and any extension line are correctly fitted to an enteral feeding device only, normally a nasogastric tube, before the pump is operated. It is also important to check all connections between syringes, sets and tubes are secure. The correct gastric position of the feeding tube should also be confirmed before every feed delivery.

The delivery is started by pressing the start button briefly and stopped by pressing the stop button for 5 seconds. The run status light indicate correct operation. The rate is locked during delivery. At the end of the feed the pump will alarm over, press stop and note volume infused in that episode of feeding and or the total volume over 24hrs. The delivery settings are locked during delivery until Stop is pressed for 5 seconds.



Summary

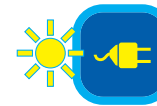
- SECURE PUMP
- POWER ON
- PRIME SYRINGE
- CHECK CONNECTIONS
- INSTALL SYRINGE
- SET DOSE LIMIT AND RATE
- CLEAR TOTAL VOLUME AND OR VOLUME INFUSED IF NEEDED
- CONFIRM NASOGASTRIC TUBE POSITION
- START DELIVERY
- ALARM OVER THEN STOP

The following auditory and visual alarms and indicators are displayed by the pump. All can be silenced by pressing the silence button or the stop button.



low battery

When the battery is about to become exhausted the low battery alarm will sound. Delivery should stop and the battery should be recharged at the mains. The battery life at average rate of delivery is approximately 4 hours. The battery is fully recharged in approximately 12 hours. The battery indicator light also illustrates the state of charge with all four bars indicating a fully charged battery.



AC power

When this light is on the pump is connect to the mains power supply.



over

This alarm sounds and the light comes on at the end of a delivery. This means that the delivery is complete. The same alarm and light will also sound and light up when a preset maximum volume is reached. Delivered volumes should be noted and new feeds initiated or the pump should be switched off until the next feed.



occlusion

This alarm sounds and lights up if the line becomes occluded. The occlusion should be identified and removed then the feed can recommence. The occlusion pressures are fixed for the average range of enteral feeds.



dislocated

This a alarm sounds if the syringe has become dislocated during an infusion. The volume of the alarms has three settings Low Medium and High. This volume can be adjusted by pressing and holding the silence button. The level is indicated by the alarm volume light.



incorrect syringe

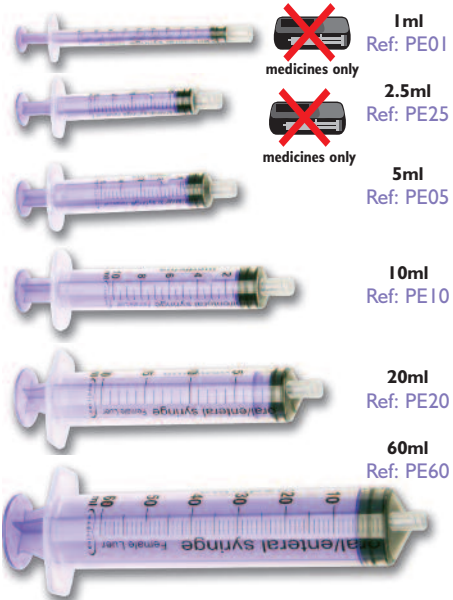
This alarm sounds if the syringe is a non-Medicina syringe. This prevents accidental misconnections. If alarm continues then remove clamp and refit.



Disposable Syringes & sets

The following single use syringes and sets may be used with the Syringe pump P900

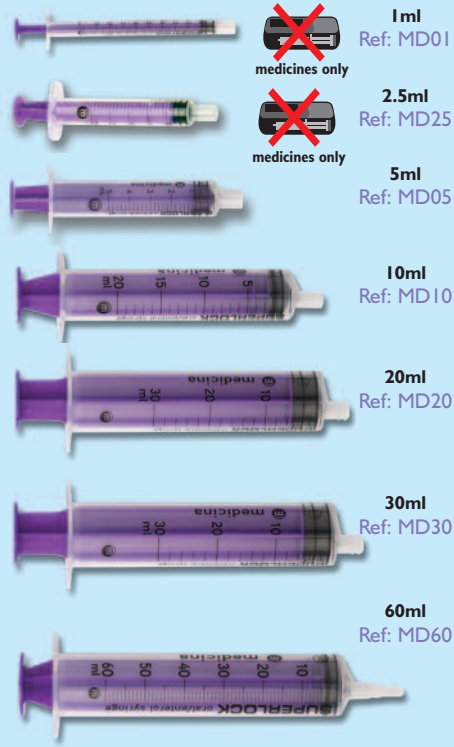
Medicina Syringes



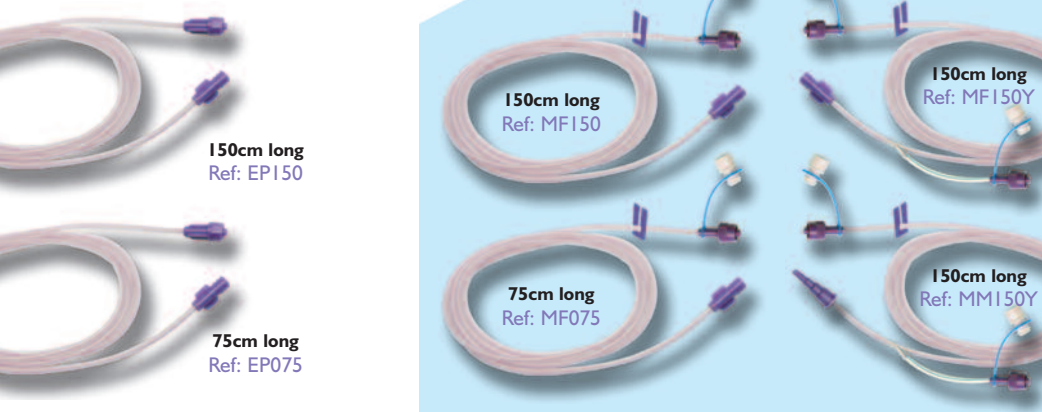
Caution the 60ml syringe PE60 and MD60 have a maximum volume of 50mls and cannot be fitted into the pump with a higher volume than 50mls.

Super Lock Syringes

(Larger connector)



Enteral Extension Sets



Pumps & Accessories

Pump

The P900 pump includes a clamp to fit to a drip stand, an instruction booklet and a mains lead.

ref: **P900**



Power Lead



Power Lead
ref: **PL01**



EEC Power Lead
ref: **PL02**



USA Power Lead
ref: **PL03**

Accessories

Replacement power cords, instruction booklets and a DVD training guide are also available.

Instruction Booklet
ref: **P5INS**



DVD Training Guide
ref: **P5DVD**



Maintenance

⚠ Caution The pump body should be cleaned in line with hospital policies or with a damp cloth or an alcohol type wipe (75% alcohol*) No other chemicals should be used to clean the pump. The pump should not be repaired or opened by anyone other than authorised Medicina Staff. This will void the warranty. All defective pumps should be returned to medicina Ltd or to an authorised service centre or distributor.

*Alcohol wipes should not be used in the display screen

Routine Maintenance

The pump should be kept clean in line with hospital policies.
The battery should be kept charged before storage and at least 3 monthly intervals.
The power cord should be inspected for damage at least once per year.
The functions of the pump can be tested using the Medicina test procedure, which can be obtained from Medicina Ltd or its authorised distributor. Test intervals will be in line with local hospital policies.

⚠ Caution If the AC light does not illuminate with the ac power on the fuse in the plug should be replaced. If it still does not illuminate the pump fuse may need replaced. The pump should be returned to Medicina Ltd or its authorised distributor.

⚠ Caution Pump batteries should be replaced after 5 years by returning the pump to to Medicina Ltd or its authorised distributor.

warranty

Medicina Ltd warrants that each new enteral syringe pump and accessories are free from defects in material and workmanship under normal use and service for a period of 12 months from the date of delivery by Medicina Ltd or its authorised distributor to the original purchaser.

If any product requires repair during the warranty period the purchaser should communicate directly with Medicina Ltd or its authorised distributor. Except as provided in this warranty. Repairs or replacement will be at the expense of Medicina Ltd. Loss or damage in return shipment will be at the purchasers risk. Medicina Ltd or its authorised distributor will in no event be liable for any incidental, indirect or consequential damages in connection with the purchase or use of any Medicina or Superlock products. This warranty applies to the original purchaser only. This warranty does not apply to any subsequent owner or holder of the product.

This warranty shall not apply to, and Medicina Ltd. or its authorised distributor shall not be responsible for, any loss or damage arising when the product has been repaired or altered, effecting its stability or reliability, by any unauthorised person. Or if the product is subjected to misuse, accident or negligence, improperly maintained or used in any way other than in accordance with these written instruction.

This warranty is in lieu of all other warranties, express or implied, and of all obligations or liabilities of Medicina Ltd. Medicina Ltd. Medicina Ltd disclaims all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.

Medicina Prototype Enteral Syringe Pump Specification P900

Syringes	5,10, 20, 30, 60 ml	Medicina & Medicina SUPERLOCK Enteral Syringes
Flow rate	0.1– 100 mls/hr (0.1 mls increment) 0.1– 100 mls/hr (0.1 mls increment) 0.1– 100 mls/hr (0.1 mls increment) 0.1– 50 mls/hr (0.1 mls increment) 0.1– 20 mls/hr (0.1 mls increment)	60 ml syringe 30 ml syringe 20 ml syringe 10ml syringe 5ml syringe
Accuracy of flow rate (Nominal value)	Accuracy including syringe: within $\pm 4\%$	Dedicated software Medicina syringes.
Display of volume infused	0.1– 99 ml (0.1–100 ml, 0.1 ml step) 24hr volume (0-99 ml, 0.1 ml increments)	
Dose limits	5 ml (10 mls) 10 ml (20 mls) 20 ml (60 mls) 30 ml (100mls) 60 ml (100mls)	
Occlusion detection	Fixed occlusion pressure fixed @0.1MPa (14.5psi)	
Alarms	OCCLUSION: BLOCKED OR OCCLUSION OVER: DELIVERY FINISHED (END OF DOSE LIMIT) DISLOCATED: SYRINGE DISLOCATED LOW BATTERY: LOW BATTERY INCORRECT SYRINGE	
Power	AC 110~220V $\pm 10\%$, 50~60 Hz ± 1 Hz. Lithium polymer battery: DC12V Continuous operation time of battery: over 4 hours when battery is recharged for 12 hours.	
Operation conditions	Ambient temperature: 5- 40°C, Relative humidity to 80%	
Storage conditions	Ambient temperature: -40 to 55°C, Relative humidity: 95%	
Electricity /safety class	Class II and internal power supply: Type BF, (CE0120)	
Weight	2.90kg	
Dimensions	288mm x 130mm x 122mm	
DISPLAY		
Syringe size	Volume infused	
Dose limit	Battery Capacity	
Total volume	Flow rate	
AC and battery power indication	Status	
Alarm volume		

