

User Manual

FOR

*AER Auto System*

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## **IMPORTANT SAFEGUARDS**

When using electrical products, especially when children are present, basic safety precautions should always be followed.

### **Danger**

To reduce the risk of electrocution:

- ▶ Always unplug this product immediately after use.
- ▶ Do not use while bathing.
- ▶ Do not place or store product where it can fall or be pulled into a bath or sink.
- ▶ Do not place in or drop into water or other liquids.
- ▶ Do not reach for a product that has fallen into water. Unplug immediately.

### **Warning**

To reduce the risk of burns, electrocution, fire, or injury to persons:

- ▶ A product should never be left unattended when plugged in.
- ▶ Close supervision is necessary when this product is used by, on, or near children.
- ▶ Use this product only for its intended use as described in this manual.
- ▶ Do not use attachments not recommended by the manufacturer.
- ▶ Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged or dropped into water. Return the product to a service centre for examination and repair.
- ▶ Keep the cord away from heated surfaces.
- ▶ Never block the air openings of the product or place it on a soft surface, such as a bed, where the air openings may be blocked. Keep the air openings free of lint, hair and the like.
- ▶ Never drop or insert any object into openings or the hose.
- ▶ Do not use outdoors or operate where aerosol (spray) products are being used.
- ▶ Connect this product to a properly grounded outlet only.

### **Grounding**

Before any connection is made, make certain that this product shall be connected to a protective earth conductor via the three-wire power cord; the three-blade plug shall be inserted only into a socket outlet that provides a protective earth contact.

## STATEMENTS

### **Note**

Indicates some tips or some information users should be aware of.

### **Caution**

Indicates correct operating or maintenance procedure to prevent damage to or destruction of the equipment or other property.

## INTRODUCTION

This manual should be used for the initial set up of the system and for reference purposes.

### **General**

The AER Auto system is a high-quality air mattress system suitable for medium to very high-risk care. It has been specifically designed for the prevention of pressure ulcers and offers an affordable solution to 24-hour pressure area care.

The AER Auto system has been tested and certified for the following standards:

- ❖ CE
- ❖ UL

### **Intended Use**

The AER Auto system is intended to reduce the incidence of pressure ulcers while optimising patient comfort. It also provides individual customised setting capability.

### **Contraindication**

Patient conditions for which the application of pressure relieving therapy on an alternation system is contraindicated are as follows:

- ▶ Cervical or skeletal traction.
- ▶ Unstable spinal cord injuries.

## PACKAGE CONTENTS

Check inside the package. If any of the following items should be missing or damaged, please contact your local dealer or service centre for replacement immediately.

### Pump Unit



### Mattress



### Cover Sheet

❖ Optional  
The cover sheet makes cleaning an easy task.










### Manual

Always read this manual before using this product.

## PRODUCT FUNCTION

### Pump Unit

The functions of the pump for AER Auto system are described below.

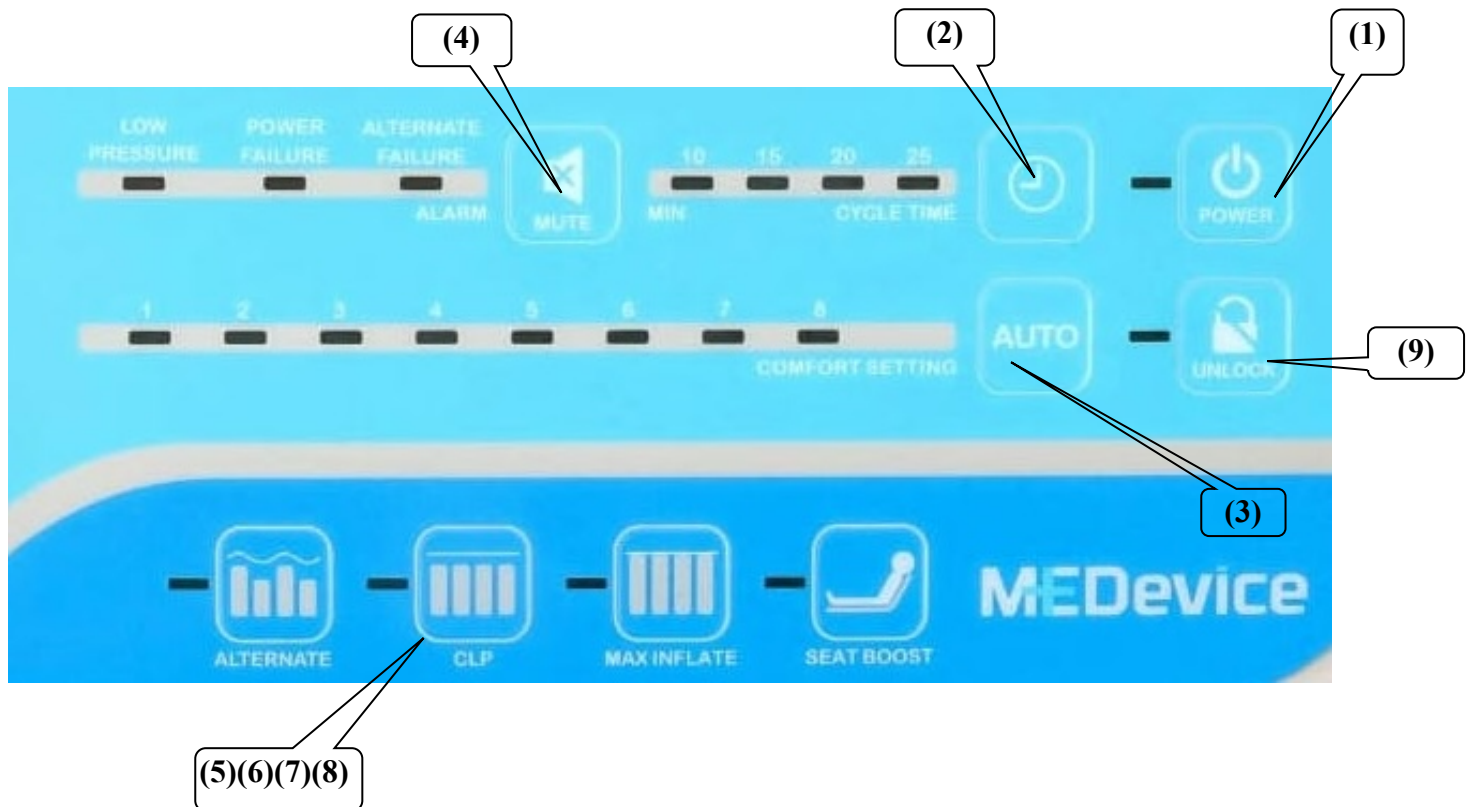
- ❖  **Power Switch (1)**
  - The switch is at the right side of the pump.
  - Turn ON/OFF, press power button on the panel, the pump will start/stop operation.
- ❖  **Cycle Time (2)**
  - The cycle time can be selected from the panel.
  - The cycle time value options are: 10, 15, 20, or 25 minutes.
- ❖  **Auto Function (3)**
  - Comfort setting has been developed for comfort only. The AER Auto will adjust the internal pressures and set the comfort mode automatically. If the patient requires a softer or firmer mattress, the clinician can alter the comfort mode to the desired setting by pressing Auto.
- ❖  **Alarm Mute (4)**
  - The audible/visible alarm turns on when low pressure, power failure or alternate failure.
  - To mute the audible alarm, press the Alarm Mute button. The visible alarm indicator will flash until the problem is solved.
  - Re-press the Alarm Mute button to reactivate the alarm.
- ❖  **Alternate Mode (5)**
  - Press to set the air mattress in alternate therapy mode.
- ❖  **Constant Low Pressure CLP (6)**
  - Press to set the air mattress in Constant Low Pressure CLP therapy mode.
- ❖  **Max Inflate (7)**
  - Press to set the mattress in quick inflation mode, which facilitates nursing and caring. Max Inflate mode will revert to last used therapy mode after 20 minutes.

## ❖ **Seat Boost (8)**

➤ Press Seat Boost for the pressure value to increase in the sacrum area to facilitate seating. Seat Boost can be used whilst the mattress is in alternating or CLP therapy modes.

## ❖ **Unlock button (9)**

➤ Auto: it will automatically lock in 5 minutes without operation.  
➤ Manual: press lock button for 3 seconds to lock the panel, press again for 3 seconds to unlock the panel.



## Mattress

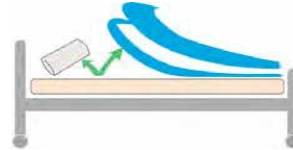
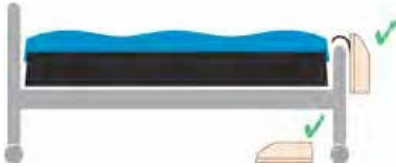
The AER Auto mattress cells are manufactured using a combination of Nylon and TPU (cell on cell).

Please refer to the specifications section on page 15 for details.

## System Installation

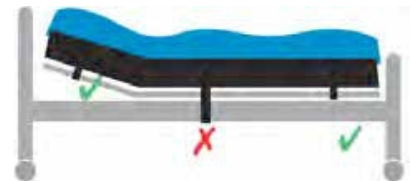
The following describes the procedures for setting up the system for the first time.

Remove all covers, sheets and mattress from the bed.



On a standard bed, position the mattress on top of the bed, printed top cover facing upwards and air hoses towards the base of the bed. Attach to the bed by securing the adjustable straps under each end of your bed. Ensure buckles are securely fastened and straps are pulled tight.

On a profiling bed, secure the side straps around the moveable sections of the bed base. **DO NOT SECURE TO THE SIDE RAILS - STRAPS WILL TEAR OFF.**



Confirm there are no sharp objects in the immediate area which may risk damage to the mattress.

**Important:** Check that the attachment of the Mattress does not interfere with the movement or operation of the bed.



## Pump Unit Activation

Position Control Unit by hanging hooks over foot board of the bed or place unit on the floor under the bed.



Attach the air hoses using the quick connector to the Control Unit. Ensure air hoses do not kink between mattress, bed frame and pump unit.

Plug the power cord into an electrical outlet with grounded AC power.

**NOTE: Before inserting the plug into the outlet, make sure the voltage is compatible. Also make sure this product is well grounded.**

Switch the power button on. The mattress will fully inflate within 20 minutes. Once ready, the low pressure light will distinguish - place the patient on the bed and select the appropriate comfort level.

Perform a "bottom out" test to ensure that patient is properly suspended. Slide your hand under the top cover along a deflated cell in the sacral (bottom) area. Secure sheets loosely enough to ensure they do not interfere with therapeutic performance.



## OPERATION

**NOTE:** Always read the operating instructions before use.

### General

This product is designed to provide maximum comfort to patients. Make sure that you operate this product in a proper way to optimise its value. Here is some general information that you should be aware of.

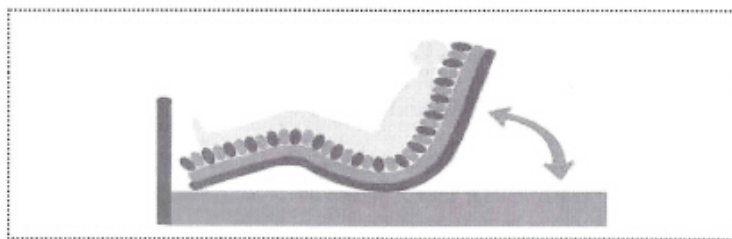
#### For products:

- DO NOT use another pump with different specifications unless instructed to do so by your local dealer. It is dangerous to use a pump with a greater pressure capacity. This may result in cell damage.
- DO NOT change any component by yourself. If there is need for replacement or repair, always contact your local dealer.

#### For patients:

When the pressure has been adjusted to a desired level of firmness, the patient can then lie on the mattress.

A firm surface will make it easier for the patient to transfer or reposition. Make use of the Max Inflate mode function for this feature. To sit a patient up in bed, press the Seat Boost button to increase the pressure to have better support on sacrum area.



#### Hand check:

Check if the pressure is properly adjusted by sliding one hand between the air mattress and bed frame to feel the patient's buttock. Users should be able to feel the space in between, and the acceptable range is approximately 25 to 40 mm (1" to 1-1/2").

Please follow instructions below for detailed operating procedure of each type.

- 1) Turn on the power. A beep sound will begin the operation.
- 2) The pump will enter CLP therapy mode when the power is initially turned on. First it will inflate the mattress to the optimum pressure and then enter alternate mode.
- 3) If optimum pressure cannot be reached within 30 minutes, the unit will stay in CLP mode and keep inflating. If optimum pressure still cannot be reached within 40 minutes, the alarm will sound and its LED will come on.
- 4) Press the Alarm Mute button to mute the alarm. The alarm LED will continue flashing. Press the Alarm Mute button again to re-enable the audible alarm.
- 5) The alternating cycle time is set at 10 minutes. Select from the control panel to adjust the cycle time and pressure level to the patient's specific requirements.
- 6) Press the CLP button for constant low pressure throughout the mattress. CLP reduces pressure within the cells allowing the patient to be immersed by the support surface and their weight distributed over a larger contact area. CLP will remain until the user changes therapy modes manually.
- 7) Press the Max Inflate button from the control panel to provide a firm surface that makes it easier for the patient to transfer or reposition. Max Inflate mode will revert to the last used therapy mode after 20 minutes.
- 8) The Seat Boost mode provides increased pressure in the sacrum area when the patient is in a seated position, this is for comfort only. Seat Boost mode will remain until the user manually adjusts back to CLP or alternating.
- 9) During normal operation, the pump will monitor pressure. If the mattress pressure is lower than the set pressure, the pump will automatically inflate the mattress to the set level and then stop. The alarm will sound and its LED will come on to alert a low pressure condition.
- 10) In case there is a bad connection of tubing or any air leakage from the mattress, this will result in a low pressure condition, and it will activate the alarm after 6 minutes.

**NOTE:**

**For suitable pressure, please refer to page 8 for the hand check procedure.**

## **CPR function**

When there is an emergency requirement to perform CPR on the patient, turn the CPR dial at the head section of the mattress to release the air quickly from the mattress. The mattress will deflate within 15 seconds.

The CPR dial is located at the front right-hand side of the mattress.

## **Pressure set up**

The AER Auto will adjust the internal pressures and set the comfort mode automatically. If the patient requires a softer or firmer mattress, users can alter the comfort mode to the desired setting by pressing Auto.

## **Low pressure warning**

When abnormal pressure occurs, the Low Pressure indicator will come on. For some types of pumps, the alarm will be activated to alert of a low pressure condition. Check if the connections are secure and correctly installed according to the relevant instructions.

### **NOTE:**

If the pressure is consistently low, open the zipper and confirm that all the hoses are properly connected. Then check for any noticeable leakage in any of the tubes. If necessary, contact your local dealer to replace any damaged tubes or hoses.

## **CLEANING**

In this section are the procedures to clean and decontaminate the pump. It is important to follow these procedures before using the system again. The cleaning task is required at least once a week to maintain personal hygiene.

### **Pump Unit**

- ▶ DO NOT immerse or soak the pump in any water or fluids.
- ▶ Check for external damage prior to cleaning.
- ▶ DO NOT use a solvent or phenolic based cleaning solution as this may cause damage to the case.
- ▶ Place the pump on a work surface and wipe the outside of the case with 75% ethyl solution.
- ▶ DO NOT spray any cleaning solution directly on the surface of the pump.
- ▶ Wipe case with a clean cloth. Spray cloth with cleaning solution. Make sure all areas are clean (top and bottom, both sides).
- ▶ DO NOT allow excess cleaning solution on faceplate or control panel. (If solution gets inside, damage will occur.)
- ▶ Allow surface to thoroughly dry after cleaning.
- ▶ After the pump is thoroughly cleaned and dried, proceed to plug in the pump and test to see if it runs normally.
- ▶ Unplug the pump and store with proper identification tag.
- ▶ Avoid long exposure to sunlight.

### **Mattress**

#### **Cleaning**

- ▶ Brush off or wipe down all surfaces of the cover sheet with soap and water before wetting with any liquid disinfectant. To disinfect in situ, use a 0.1% sodium hypochlorite solution (1,000ppm chlorine).
- ▶ Any blood spots or bodily fluid should be wiped first with a paper towel and then cleaned with 1% sodium hypochlorite solution (10,000ppm chlorine).
- ▶ Wash down with soap and water to remove disinfectant and allow to dry thoroughly.

#### **Washing**

- ▶ Unzip the top cover from the mattress.
- ▶ Brush or wipe down all surfaces with soap and water before applying any disinfectant.
- ▶ Covers are immersed and soaked in disinfectant for the required incubation time.

- ▶ After pre-soaking, the cover is laundered with mild detergent (wash temperature up to 95°C).
- ▶ Covers must be aerated/hung until they are fully dry or tumble up to 60°C.
- ▶ The air cells are unsnapped from one side and are sprayed on all sides with a disinfectant. Let it sit for the required incubation time and wipe down with a clean cloth. Make sure to disconnect all the air cells, one by one, and spray the disinfectant on all sides, including all the connecting tubes and hoses. Let it sit for at least 10 minutes.
- ▶ If there is a base after you remove all the air cells, the base must be sprayed down with the disinfectant, inside and outside. Let it sit for the required incubation time and wipe down with a cloth.
- ▶ Repeat the process with the tubing set: spray, incubate, and then wipe clean.
- ▶ The carrying bag should be turned inside out and completely wiped down using the disinfectant solution. Allow it to thoroughly air dry. Once the inside is dry, turn it back, wipe down the outside of the bag with disinfectant.
- ▶ Dry the mattress on a flat surface area after cleaning, away from exposure to the sun.
- ▶ Avoid long exposure to sunlight.

## **HANDLING AND STORAGE**

- ▶ Lay the mattress out flat and upside down.
- ▶ Roll from the foot end towards the head end; the foot-end strap can then be stretched around the rolled mattress to prevent unrolling.
- ▶ Do not fold, crease or stack the mattress.

## **MAINTENANCE**

### **General**

- ▶ Check the power cord and plug to see if there are abrasions or excessive wear.
- ▶ Check the mattress cover for signs of wear or damage. Ensure the mattress cover and tubes are connected correctly.
- ▶ Plug in the pump unit and check the airflow from the hose connection port. The airflow should alternate between ports every half-cycle time.
- ▶ Check the air hoses to see if there are any kinks or breaks. For replacement, please contact your local agent or dealer.
- ▶ Make sure the mattress tube is well connected.
- ▶ Check the pump unit and make sure both power indicators are off when the switch is turned off.

## Low pressure

- ▶ Examine if there is any air leakage between the pump and the mattress connections or from the air mattress tubes.
- ▶ Check connectors between the air mattress and pump. If there is any disconnection, please reconnect it.
- ▶ Check the CPR Valves. Ensure their outlets are sealed.
- ▶ Check the air-connecting tubes. Ensure each single cell is not broken.
- ▶ Set the pressure at Max Inflate. Keep the tubes fully inflated and inspect for air leakage.
- ▶ Check if there is any air leakage from cells. Ensure no leakage occurs. If any leakage occurs, please contact your local agent or dealer.

## TROUBLESHOOTING

Problems		Reasons	Maintenance
Mattress fails to inflate or does not inflate completely.	Pump issue	1. Pump does not work.	1. Once powered on, check if visible LED light turns on. If not, please check the below issues: 2. Check if power cord is plugged into appropriate voltage AC outlet. 3. Engineers only - Check if fuse is loose or burned out, make sure it's connected well or replace with new one. 4. Engineers only - Open the pump and see if wires inside are connected well, make sure they are not loose. 5. Engineers only - Change lower PCB.
		6. Air pressure from pump is too low.	1. Engineers only - Check if there is air leakage from the exchanger, if yes then replace with new exchanger. 2. Engineers only - Check if air pressure is high enough from the compressor, if not then replace with new compressor. 3. Engineers only - Check if silicone tube inside the pump is connected well.

	Mattress issue	<ol style="list-style-type: none"> <li>1. Quick connector on mattress does not connect well with pump.</li> <li>2. Air tube connected to T/L connector and air valve is loose, CPR connector is not capped.</li> <li>3. One way valve is broken.</li> <li>4. Air cell is leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure quick connector on mattress is connected well with pump.</li> <li>2. Make sure T/L connector and air valve is connected well, CPR connector is capped well.</li> <li>3. Change one way valve.</li> <li>4. Change air cell.</li> </ol>
Mattress has pillow function, but air cell fails to inflate.		<ol style="list-style-type: none"> <li>1. One way valve is assembled reversely.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assemble the one-way valve in correct direction.</li> </ol>
Pump is working but synchronous motor does not work; thus, mattress does not alternate, and alternate failure alarm is activated.		<ol style="list-style-type: none"> <li>1. Synchronous motor is out of order.</li> <li>2. Wires inside synchronous motor does not connect well.</li> <li>3. Lower PCB is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
Pump and motor keep working, but cycle time is incorrect. The alternate failure alarm is activated.		<ol style="list-style-type: none"> <li>1. Micro switch on the exchanger is out of order.</li> <li>2. Lower PCB is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
When powered on, compressor stops after working some time; but the exchanger keeps rotating.		<ol style="list-style-type: none"> <li>1. Pressure detector is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
Mattress pressure is low but alarm is not activated.		<ol style="list-style-type: none"> <li>1. Pressure detector is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
Push button on panel is not operated well, and LED indicator does not light up.		<ol style="list-style-type: none"> <li>1. Push button is not operated well.</li> <li>2. LED is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
Mattress pressure is too high or too low.		<ol style="list-style-type: none"> <li>1. Pressure sensor is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>
Power failure alarm can't be activated after power failure.		<ol style="list-style-type: none"> <li>1. Battery is out of order.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact your engineer/dealer</li> </ol>

## SPECIFICATIONS

### Technical Specifications

Pump	Mattress
Item: AER Auto	Item: AER Auto Mattress
Power supply: 220V/50Hz, 1A	Size: 200cm(L) x 90cm(W) x 18cm(H)
Air output: 9 litre/minute.	Top cover: 4-way stretch fabric with zipper
Electrical Classification – Class 1	Air cells: Nylon PVC
Cycle time: 10/15/20/25 minutes.	Base: Durable Nylon/PVC 840D
Case Material: Flame Retardant ABS	20 x 7" Cell-on-Cell air cells
Max Inflate mode, Auto Weight (IPS)	Twist CPR valve for emergency procedures
Alarm: Low pressure/Power failure/Alternate failure	Pillow function
Alternate/CLP/Seat Boost mode	Quick connectors
Size: 31cm(L) x 12.5cm(W) x 21cm(H)	Maximum weight capacity: 180kg
Weight: 2.5kg	Minimum weight capacity: 40kg
Decibels: 35dB	Mattress weight: 9.5kg

### Note:

The above specifications are also applicable to those areas operating with the same power supply range.

### Warranty:

2 years for pump and mattress

## CONTACT INFORMATION

### MEDevice Limited

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