

# Aria<sup>+</sup>

## Hybrid Pressure Care System



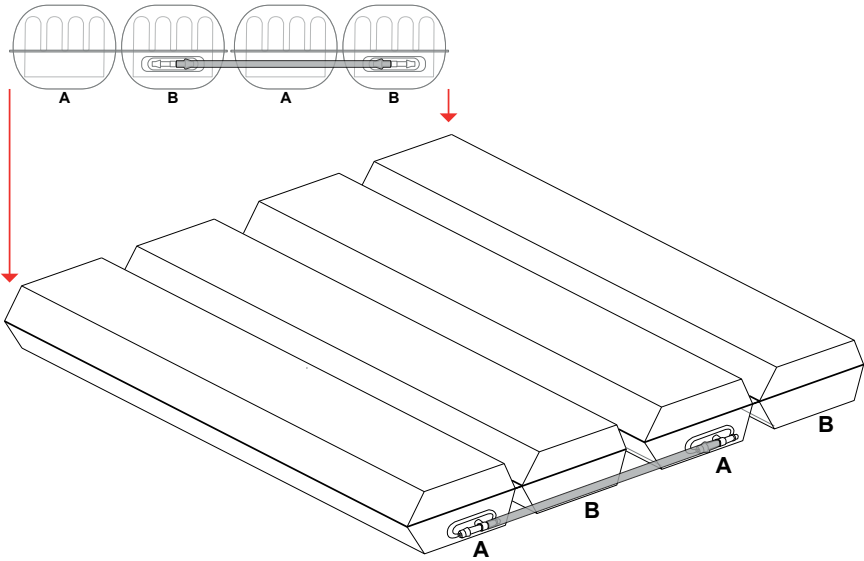
Aria+ is a pressure relieving mattress suitable for use with patients at VERY HIGH RISK of pressure ulcer damage. Offering high levels of patient comfort, this unique system has the facility to “step up” to that of a dynamic mattress when clinically required. Similarly, the mattress’s function can be downgraded as the patient’s condition improves. These features make it particularly beneficial for use within the patient’s home or palliative care environment and help reduce logistic and decontamination costs. The clinical benefits of a single system are equally applicable to those of a modern hospital setting. A higher maximum weight capacity, up to 36 stone / 230kg, allows the product to meet the modern challenges of those heavier clients. All component parts are interchangeable and replaceable, maximising product life and reducing environmental impact.

## 1. Introduction

The Mattress consists of a foam head cell and series of 5 pairs of transverse air cells, each containing a unique foam profiled insert, which are in turn held within a foam U Core, all protected by a vapour permeable waterproof cover. The single pillow end consists of foam only. The transverse cells are arranged into alternate pairs of A and B cells which are filled and emptied in sequence.

In Static Mode, the mattress attains the pressure reducing properties of the Aria+ Foam mattress (details available on request), whilst in Alternating Mode the mattress is able to offer similar properties to a pressure relieving dynamic system.

The digitally controlled Power Unit controls a pump that allows air to flow into, or out of the air cells as required according to the operating mode selected. It also maintains the air pressure within the mattress at the required level and controls the action of the audible/visual Audible Warning system in the event of mains supply failure or over or under inflation pressure. A CPR Valve located at the pump end of the umbilical hose permits the rapid deflation of the Mattress in an emergency.





**NOTE:** Please ensure that all securing straps on the base of the mattress are secured onto the NON MOVING PARTS of the bed frame. For shut down procedure, see 4.2 Power Unit (Pump) section.

### Power Switch Audible Warning Reset

The power switch simply switches the mains power to the pump on and off. When the pump detects an Audible Warning condition, this can be silenced as below and reset by switching the pump off and then back off again.



### CPR Valve

Please ensure that the CPR connector is always placed fully home, prior to inflating the mattress.

**NB:** The mattress will NOT inflate properly should this not be the case. The CPR connector is only to be used in the event of a clinical emergency for priority use. However, disconnecting this function will cleverly deflate air rapidly from the mattress in readiness for transport / static mode.



### Warning Modes

There are two red LEDs which inform the user of potential problems with the mattress system.

The yellow warning triangle denotes a pressure issue in the mattress.

**Low Pressure Alarm:** The red LED will flash slowly whilst an audible alarm also sounds. Check all hose connections

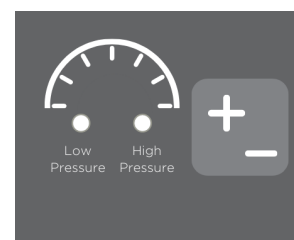
**High Pressure Alarm:** The red LED flashes rapidly whilst an audible alarm also sounds.

**System Failure:** The red LED next to the spanner will flash and an audible alarm also sounds.



### Pressure Settings

The +/- button is used to adjust the pressure from Low pressure to High pressure. The left hand LED denotes Low pressure selected. The right hand LED denotes High pressure selected.



## 4.1. Mattress

Place the Aria+ directly on to the bed platform ensuring that the Blue multi-stretch waterproof cover is on top and that the umbilical hose is located at the left hand corner at the foot end of the bed. Only Dartex material is used to construct the top covers.

**Cover the Mattress with a loose fitting sheet.**

### Static Mattress Use

Aria+ can be used as a pressure reducing mattress for patients at High Risk of pressure ulcer damage without the need to attach the pump.

### Alternating Mattress Use

If/When required, the Aria+ can be used as an alternating mattress system by attaching the Aria+ pump system. No other system should be attached to the mattress as the design settings and internal air pressure properties of the Aria+ pump are specific to this mattress only.

The Aria+ is a replacement mattress system and should NOT be placed on top of any existing mattress.

**The start up time from static to dynamic mode is immediate.**

## 4.2. Power Unit (Pump)

Hang the Power Unit (Pump) onto the foot board. The mounting hooks swivel to suit the thickness of the foot board or rail. Connecting the Umbilical Hose to the Power Unit (Pump), place the 3-pin electrical plug into the wall outlet and switch on:

Attach the Blue Umbilical Hose to the Power Unit (Pump) by connecting the air connector at the end of the Umbilical Hose to the air inlet connector at the bottom left hand side of the pump. Ensure that the Red CPR Release button is located on top of the Air Inlet connector after connection is complete.

**Shut down is the reverse of above.**

## 5. Operation

Attach the mains cable to the pump by inserting the “kettle” type connector into the recess located on the left hand side of the pump. The mains cable has been designed specifically as a removable part to aid in easy replacement should it become damaged in use.

The mains plug should be turned off and removed from wall socket as a means of isolation.

Plug the mains cable into a suitable 230v mains socket and switch on the Power Unit using the on/off switch.

After the pump has been turned on both the “Hi” and the “Lo” lights will flash together intermittently until the pump has attained its initial operating pressure. Once the pump has attained its initial operating pressure the “Lo” light will stay on constantly and the mattress is ready for use.

## 5.1. Lo / Hi Settings

The Aria+ Mattress, in Alternating Mode, has two pressure settings. The initial setting that the pump will revert to upon set up is “Lo”. The “Lo” comfort setting is ideal for the lighter patient or those who feel discomfort when on a normal alternating air type mattresses system. However, for patients with existing pressure damage or those at Very High Risk, it is recommended that dependant on the clinical judgement of the clinician, the “Hi” setting is activated by pressing the +/- button once, which is located on top of the pump. In “Hi” Mode the pump attains more of the characteristics of an alternating air mattress system whilst still utilising the advantages of the static foam insert. Repeatedly pressing the ‘mode’ button enables the Lo & Hi modes to be selected in turn.

## 5.2. CPR Deflation

The CPR system consists of a manually operated button located on the Air Inlet connector attached to the pump. By pressing the Red Button, which will release the connector locking system, the user can remove the connector unit which will deflate the mattress air system back to that of a static foam mattress.

**Note:** After a short period as the Mattress deflates the ‘Low Pressure’ Audible Warning is activated and can be cancelled by switching the Power Unit off.

## 5.3. Troubleshooting

For assistance (if needed) in setting up, using or maintaining the Aria+, or to report unexpected operation or events, please contact Enable Lifecare on the contact details on the reverse of this manual.

## 6. Transportation

To change the location of the mattress, remove the Umbilical cord and allow the mattress to return to its Static Mattress form. Switch off the Power Unit (Pump) using the on/off switch and disconnect the electrical supply cable from the mains socket. The mattress can now be moved to a new location where it must immediately be reconnected to the mains electrical supply and the Power Unit (Pump) switched back on. Once the Mattress has been refilled, the ‘Alternating’ mode will automatically revert back to the Lo setting and should be reselected to Hi should this be desired by the clinician.



### WARNING

The Mattress will not ‘alternate’ when disconnected from the Power Unit (Pump) and /or the mains electrical. Also refer to environmental conditions section at rear of this manual.

## 7. Audible Warnings

Audible Warning conditions are indicated by a flashing red display accompanied by an audible warning. In each case the user should respond by turning the Power Unit's switch off investigating the cause.

### 7.1. High Pressure Audible Warning

This condition could be caused, for example by a kinked Umbilical Hose or visitors, and others, sitting suddenly on the Mattress.

### 7.2. Low Pressure Audible Warning

This condition could be caused, for example, by incorrect fitting of the air inlet connector, opening of the CPR Valve or a leak in the Mattress due to a cut or puncture.

### 7.3. Mains Failure Audible Warning

If mains power is lost the all Mode lights will turn off. This Audible Warning condition will only be audible. The red Audible Warning light will not flash.

## 8. Maintenance procedures

### 8.1. Safety Warning

Only qualified technicians trained or formally approved by Enable Lifecare in the operation and maintenance of Enable Lifecare products may carry out maintenance, modification or repair work on the equipment. Unqualified personnel attempting to work on Enable Lifecare Power Units risk serious injury to themselves and others and possibly death by electrocution. Inlet fuse NOT to be replaced by operator or patient, to be replaced by service personnel only.



#### **WARNING**

Do not modify this equipment without authorisation of Enable Lifecare.

#### 8.1.1 Servicing

Enable Lifecare recommend that the Power Unit (Pump) should be serviced every year. The unit contains no user serviceable parts and should only be carried out by persons as described in section 8.1. Enable Lifecare will make available on request service manuals, component parts lists and other information necessary for any suitably qualified person (As in 8.1) to carry out repair or service the system. For Service, maintenance and any questions regarding this please contact Enable Lifecare.

## 8.2. Cleaning Procedures

---



### WARNING

Before cleaning the System make sure that the Power Unit (Pump) is disconnected from the mains electricity supply.

Do not immerse the Power Unit (Pump) in water or other fluids.

Do not autoclave, nor use phenol for cleaning.

Do wash hands before commencing the cleaning process.

Wear appropriate protective clothing such as gloves, apron and a mask.

Ensure all work surfaces are cleaned before and after contact with the mattress.

---

## 8.3. Warning – Cleaning the Power Unit (Pump)

The power Unit can be cleaned by wiping a cloth dampened with a detergent solution or Hypochlorite solution.

Also refer to symbol chart.

### 8.3.1 Warning

Ensure the Aria+ hybrid pressure care system is not exposed to:

1. Excessive heat sources e.g. fires, radiators etc
2. Water, particularly immersion of the pump.

## 8.4. Warning – Cleaning the Mattress

1. Cleaning should take place after use or between patients.
2. With cover left on the Mattress disconnect the Mattress from the Power Unit (Pump).
3. Clean the surface of the wash down table with Hypochlorite solution or equivalent disinfectant.
4. Wash Mattress top using hot water (60 degrees C) containing detergent – dry with a paper towel.
5. For heavy contamination use a Hypochlorite solution 1,000 parts per million available chlorine.
6. Using suitable brush, hot water, detergent or Hypochlorite solution, clean Umbilical Hose and CPR Valve. Dry with paper towel.
7. If required, the Mattress Cover may be removed and machine washed at a temperature of 80 degrees C, for not less than 10 minutes. The individual Air Cells can be wiped down with established disinfectants.
8. To avoid shrinkage of the cover line dry in an indoor clean environment or tumble dry on a low heat setting not exceeding 40 degrees C and not for longer than 10 minutes. Covers must be thoroughly dried before re-fitting to the mattress.

## 9. Technical data

### 9.1. Power Unit (Pump)

Serial Number	As per label on base of pump
Electrical Supply	220-240 volt, 50 Hz
Power Consumption	10 watts
Fuses	TA1H 250V
Protection against shock	Class 2
Noise Level	Approx. 25 dB (A)
Dimension	235 x 180 x 80 mm
Weight	1.7 kg
Service Interval	12 months
Expected life	5 years
Shelf life of parts	5 years
Warranty ( If serviced annually by Enable Lifecare or Authorised Dealer)	12 months

### 9.2 Mattress

Serial Number	Label on inside of mattress cover
Number of Air Cells	10 Air Cells
Dimension	2000 x 880 x 180mm (Nominal)
Weight	20 kg
Expected life of Mattress	5 years
Shelf life of Mattress parts	5 years



## EMC GUIDANCE AND DECLARATION

This guidance and manufacturer's declaration pertains to the Aria+ range of pressure relief equipment which is listed at the back of this User Manual

### EMC Compliance

Special precautions concerning electromagnetic compatibility (EMC) must be taken for all medical electrical equipment. This device complies with IEC EN 60601-1-2:2007.

- All medical electrical equipment must be installed and put into service in accordance with the EMC information provided in this document.
- Portable and mobile RF communications equipment can affect the behaviour of medical electrical equipment.
- Aria+ pump units comply with all applicable and required standards for electromagnetic interference.
- It does not normally affect nearby equipment and devices.
- It is not normally affected by nearby equipment and devices.
- It is not safe to operate Aria+ pumps in the presence of high-frequency surgical equipment.
- It is good practice to avoid using Aria+ pumps in extremely close proximity to other equipment.

### Electromagnetic Emissions

The Pulse Press range of pumps are intended for use in the electromagnetic environment explained below. The user should assure that they are used in such an environment.

EMISSIONS TEST	COMPLIANCE	ENVIRONMENT GUIDANCE
RF emissions CISPR 11	Group 1	Pumps emission are very low and unlikely to cause interference.
RF emissions CISPR 11	Class B	Pumps are intended for use by medical professionals only.
Harmonic Emissions EN 61000-3-2	Class B	If this equipment causes inference to near by devices then try to relocate or re-orient the device.
Voltage Fluctuations EN 61000-3-3	Complies	

## Electromagnetic Immunity

Aria+ pump are intended for use in the electromagnetic environment explained below. The user should assure that they are used in such an environment.

IMMUNITY TEST	60601 TEST	COMPLIANCE	ENVIRONMENT GUIDANCE
Electrostatic discharge IEC 61000-4-2	+/- 4kV Contact +/- 8kV Air	+/- 4kV Contact +/- 8kV Air	Floor should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	+/- 2kV power supply lines +/- 1kV input output lines	+/- 2kV power supply lines +/- 1kV input output lines	Mains power quality should be that of a typical commercial or hospital.
Voltage Surge IEC 61000-4-5	+/- 2kV common mode +/- 1kV differential mode	+/- 2kV common mode +/- 1kV differential mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips and Interruptions IEC 61000-4-11	30% Dip 25 cycle 60% Dip 5 cycle 100% Dip 0.5 cycle 100% Dip 250 cycle	30% Dip 25 cycle 60% Dip 5 cycle >95% Dip 0.5 cycle >95% Dip 250 cycle	

### RECOMMENDED SEPARATION DISTANCE

Conducted RF IEC 61000-4-6	3 Vrms 150kHz to 80MHz	3 Vrms	$d=(1.17) \sqrt{P}$	0.15 to 80 MHz
Radiated RF	3 V/m	3 V/m	$d=(1.17) \sqrt{P}$ $d=(2.33) \sqrt{P}$	80 to 800 MHz 0.8 to 2.5 GHz

### RATED OUTPUT POWER 150KHz to 80MHz 80MHz to 800MHz 800MHz to 2.5GHz

P of transmitter in Watts	$d=1.17 \sqrt{P}$	$d=1.17 \sqrt{P}$	$d=2.33 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.7	3.7	7.4
100	11.7	11.7	23.3

The device is intended for use in an electromagnetic environment in which the HF disturbances are controlled. The user can contribute to the avoidance of electromagnetic disturbances by adhering to the minimum distance required between portable and mobile HF telecommunications equipment (transmitters) and the device – depending on the output power of the communications device, as indicated below.

For transmitters whose maximum output power is not indicated in the above table, the recommended safety distance in meters (m) can be determined by using the formula that belongs to the same column, with P being the maximum output power rating of the transmitter in watts (W) according to the manufacturer's specifications.

Through our innovative, quality products, exceptional service and ingrained knowledge and expertise of the healthcare industry, Highgate Healthcare has been raising the standard of living in aged care, hospital, disability and rehabilitation facilities in Australia for over 30 years.



**Highgate Healthcare**

**1300 350 350**

**2 Selgar Avenue Tonsley SA 5042**

**[highgatehealthcare.com.au](http://highgatehealthcare.com.au)**