

# Diversi-Foam

Hybrid Mattress Replacement System

UPRA3678H-2

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## User Manual

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## 1. Introduction

This User Manual contains instructions for the installation, use and maintenance of the Ultimate Healthcare Diversi-Foam Hybrid mattress replacement system. You must read and fully understand this manual before using the system.



- *Caution: Ultimate Healthcare shall not be liable for any damage or injury caused by failure to follow the proper instructions as described in this User Manual.*



- *Caution: Before using the dynamic mattress replacement system all staff must familiarise themselves thoroughly with the various parts and controls as detailed in this User Manual.*

**Note:** Ultimate Healthcare reserves the right to modify the information in this User Manual at any time. The information in this User Manual may vary slightly with respect to the basic design of the product.

## 2. Intended Use

The intended use of this product is to prevent and/or manage pressure ulcers while optimising patient comfort for patients up to 250kg / 39.3 stone.

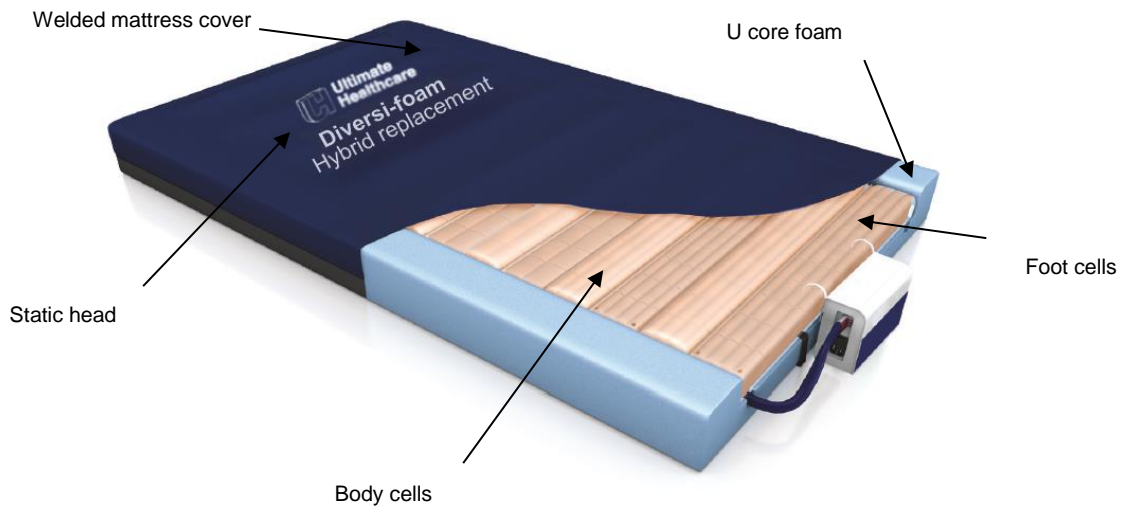
This product is intended to be used as a static pressure care mattress and with the use of the pump a dynamic pressure care mattress.

## 3. About the Product

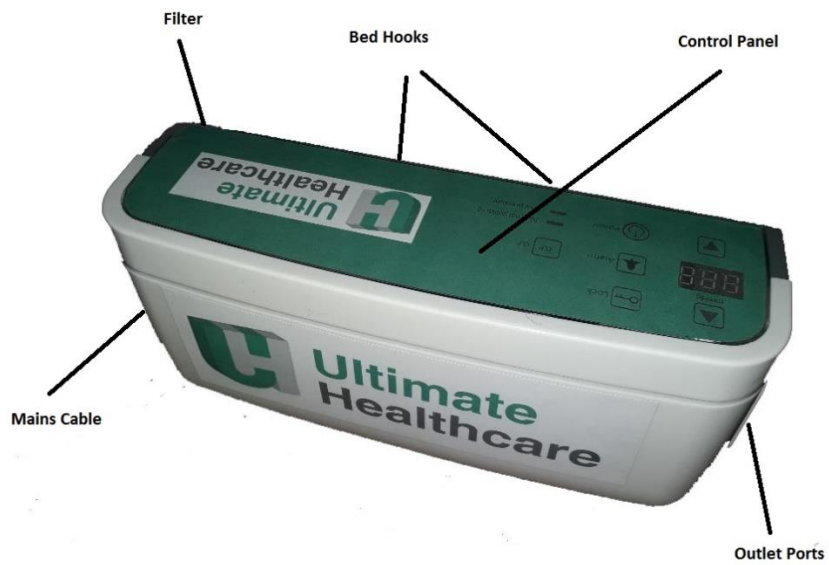
The Diversi-Foam Hybrid mattress replacement system provides highly effective care and protection for patients at High to Very High Risk of pressure ulcer development and is a cost-effective solution for any healthcare environment.

A flexible range of features allow the Diversi-Foam Hybrid to provide individualised patient care. The system offers both **Dynamic**, **Static** and **Constant Low Pressure** therapy modes allowing nursing staff to adjust the therapy and comfort offered to patients.

## Mattress Replacement



## Power Unit



## 4. Symbols and Statements



Note: Indicates tips and advice for the correct use of this product.



Caution: Indicates correct operating or maintenance procedures in order to prevent damage to or destruction of the product or other property.



Warning: Indicates potential danger that requires correct procedures or practises in order to prevent personal injury.



The operator must read this document (User Manual) before use.

**IP21**

Water and dust protection classification.



Disposal of electrical and electronic equipment (WEEE): This product should be handed over to an applicable collection point for the recycling of electrical and electronic equipment.



CE certified.

## 5. Important Safety Information

Please read all instructions prior to using any Ultimate Healthcare supplied product. The Diversi-Foam Hybrid mattress replacement system must be used in accordance with this User Manual.



The mattress must only be operated by personnel who have been properly trained or have suitable experience with products of this nature.



Ensure a clinical Risk Assessment is conducted, which should take account of the suitability of use of this product, patient's condition, any ancillary equipment in use and the surrounding environment. This should include assessing the use of side rails, head and footboards etc. Pressure settings should be advised or prescribed by a medical practitioner.



Only personnel trained or formally approved by Ultimate Healthcare in operation and maintenance of Ultimate Healthcare products may perform maintenance; modification or repair work on any Ultimate Healthcare supplied product.



Ensure the power cable is not trapped or twisted and is routed suitably to avoid crushing or entrapment when connected to the product.



Do not use your mattress system power unit in the presence of flammable gases. This excludes oxygen cylinders.



Avoid hazards caused by inappropriate handling of the power cable e.g. by kinking, shearing or other mechanical damages.



The power cable for this product must be unplugged from the mains power outlet socket and suitably stowed before moving, cleaning or maintenance activities.



Disconnect from mains (power supply) before cleaning the power unit.



When cleaning do not immerse the power unit in water.



Use only the cleaning and disinfectant agents recommended in this User Manual.



When connecting product after transportation or storage, inspect the power cable visually for any signs of damage. If evident, do not use product and contact Ultimate Healthcare or your local distributor for repair.



When storing, ensure the product is stored away from direct sunlight and extreme cold conditions.



Never block the air openings of this product or place it on a soft surface, such as a bed or couch, where their openings may be blocked. Keep the air opening free of lint, hair, and other similar particles. Air ventilation through the power unit is vital for correct and safe operation.



If this product is used for any activity other than detailed within this User Manual then personal risk to the end user or patient may occur. Ultimate Healthcare shall not be held liable/responsible for such an event.



Do not smoke, or allow the patient to smoke when using this product. Keep all possible ignition sources clear of this product.

## 6. Technical Specification

### 6.1 Power unit

<b>Dimensions:</b>	80mm x 260mm x 150mm (D x W X H)
<b>Weight:</b>	1.6 kg
<b>Alternating cycle time:</b>	10 mins
<b>Output pressure range:</b>	20 to 55mmHg (+/-5)
<b>Power supply:</b>	AC 230V 50 Hz
<b>Current:</b>	0.12 A
<b>Classification:</b>	Class II, Type B
<b>Warranty:</b>	2 years
<b>Operation environment:</b>	5°C to 40°C 15%RH ~ 93%RH (no condensation)
<b>Storage environment:</b>	-25°C~70°C ≤93%RH (no condensation)
<b>Environment pressure:</b>	70 kPa-101.3 kPa
<b>Water &amp; dust protection classification:</b>	IP21

### 6.2 Mattress

<b>Dimensions:</b>	1980mm x 880mm x 150mm (L x W X H)
<b>Weight:</b>	13.3 kg
<b>No of cells:</b>	14
<b>Cover material:</b>	2 way stretch polyester with PU Coated
<b>Bottom material:</b>	PU coated polyester
<b>Max user weight:</b>	250 kg / 39.3 stone

## 7. Installation and Set-Up

### 7.1 Setting up mattress

The mattress is designed to completely replace any existing mattress which may be in use on a bed.

Remove any existing mattress and ensure that there are no protruding parts or sharp objects on the bed which could cause damage to the mattress. Lay the mattress on the bed patient surface ensuring that the air pipe connector is situated on the bottom left hand side of the bed foot end (as viewed from the foot of the bed).

The mattress can be used as a static mattress without the pump attached,

### 7.2 Setting up power unit

Whilst holding the power unit, unfold the hanging hooks on the rear of the power unit and hang it from the beds footboard. If required the power unit can be placed on the floor at the foot of the bed.



- *Caution: Ensure that the power cable is routed in such a manner so that it cannot be twisted, trapped, crushed or stressed.*

### 7.3 Connecting mattress to the power unit

Remove the cover of the air pipe connector and connect the air pipe connector to the power unit and then ensure that the air tubes are free from any kind of obstruction, and are not kinked.

Plug the power cable into a suitable electrical socket and switch 'ON' using mains power switch found at the side of the power unit. All indicators on control panel will light up. The **Standby** indicator on the control panel will light up.

Push the **Power** button and the system will start inflation

Once the mattress is fully inflated, you can set the mattress to the appropriate setting suitable for the patient. *Please refer to Table 1 for the most suitable settings.*



- *Caution: The power unit must only be connected to the mattress recommended by the manufacturer. Do not use it for any other purpose.*



- *Note: Ensure that the CPR valve is set to the closed position.*

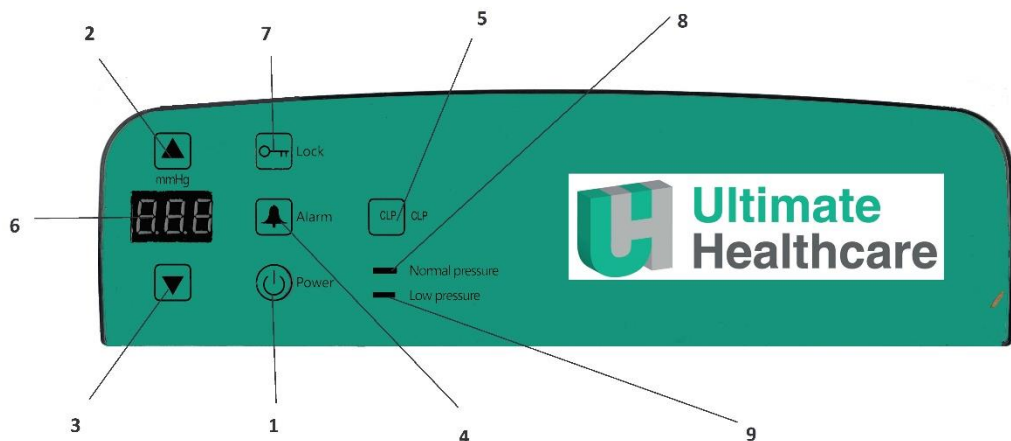


Table 1: Weight and Suggested Comfort Level Reference Table

Pump output Pressure (mmHg)	Patient Weight (kg)								
	20	30	40	50	70	90	120	160	180+
20	20 - 30								
25		30 - 40							
30			40 - 50						
35				50 - 70					
40					70 - 90				
45						90 - 120			
50							120 -160		
55								160-180+	

## 8. Control Panel Operation Guide

The Control Panel of the power unit is used to make adjustments to the mattress and also indicates fault conditions/service requirements. These are either visual (indicator lights) or audible.



- |                        |                             |
|------------------------|-----------------------------|
| 1 Power Button         | 5 CLP Button                |
| 2 Pressure Up Button   | 6 Weight / Pressure Display |
| 3 Pressure Down Button | 7 Lock Button               |
| 4 Alarm Reset Button   | 8 Normal Pressure Indicator |
|                        | 9 Low Pressure Indicator    |

## 8.1 Power Button

Press the **Power** button to turn the power unit ON. Press again to turn OFF/Standby the power unit.

## 8.2 Comfort level

The **Up** and **Down** buttons allow carers to adjust pressures within a safe pre-set range to provide patients with enhanced comfort or support whilst maintaining a very good level of protection and therapy. Qualified clinical advice must always be taken before adjusting mattress pressures.

The required pressure is selected using the **Up** and **Down** buttons to move the pressure by one step at a time.

When pressing the **Up** button, the output pressure will increase to provide a higher pressure output and thus increased support.

When pressing the **Soft** button, the output pressure will be decreased to provide a lower pressure output and thus increased comfort.

## 8.3 Control panel lockout

If the control panel is not used for a period of 15 seconds it will lock out and inhibit the use of the functions. Additionally, if you wish to lock out the control panel press the **Lock Out** button and all functions will be locked. This is to prevent the system being altered accidentally.

In order to unlock the control panel, simply press and hold the **Lock Out** button for 3 seconds, the control panel will now be active for use.

## 8.4 Function mode switch

### 8.4.1 *Alternate*

**Alternating** mode is the default mode for the system. Within this mode the mattress will operate in an alternating 1-in-2 cell cycle. The alternating cycle will continue at the selected cycle time until another mode is selected.

### 8.4.2 *Constant Low Pressure (CLP)*

Pressing the **Function Mode Selection** button until the **CLP** indicator illuminates puts the system into **Constant Low Pressure (CLP)** mode, this mode is static at 15mmhg.

## 8.5 Alarm mute

The **Alarm Mute** button temporarily resets the audible *Low Pressure/Power Failure/Service* alarms. Should the situation not be resolved and the fault condition continues the alarm will resume notifying carer.

# 9. Alarms & Fault Findings

The system is equipped with audible and visual alarm indicators. These alert the user to the status of the available mains supply and any mattress defect.

## 9.1 Low pressure alarm

Upon detection of low pressure, an audible alarm will be heard and the **Low Pressure** indicator will illuminate. The audible alarm may be cancelled by pressing the **Alarm Mute** button. The **Low Pressure** indicator will continuously illuminate until the low pressure fault condition is resolved.

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

## 9.2 Power failure alarm

If at any time the mains power should be removed from the power unit or the power cable is unplugged without turning the power unit OFF, an audible alarm will be heard and the **Power Failure** indicator will illuminate. The audible alarm may be cancelled by pressing the **Alarm Mute** button.

The mattress is capable of supporting the patient in static mode until the power is restored.

## 9.3 System failure alarm

The red LED will flash next to the spanner symbol whilst an audible alarm sounds.

## 9.4 Mains failure audible warning

If at any time the mains power should be removed from the power unit or the power cable is unplugged without turning the power unit OFF, an audible alarm will be heard and all of the mode lights will turn off.

The mattress is capable of supporting the patient in static mode until the power is restored.

## 10.Troubleshooting

PROBLEM	SOLUTION
<b>No lights on power unit</b>	<ul style="list-style-type: none"> <li>• Check the power unit is connected to the mains power supply and that the mains switch is turned ON.</li> <li>• Check power unit for any blown fuses.</li> </ul>
<b>Low Pressure indicator is flashing</b>	<ul style="list-style-type: none"> <li>• Check whether power was suddenly shut down.</li> <li>• Check that the connection between air tube and power unit is tightly secured.</li> <li>• Check that all tubing connections along the mattress are secured.</li> <li>• If all of above steps have been checked. Press “Alarm Mute” for system to be verified again.</li> </ul>
<b>Power Failure Alarm Indicator is flashing and sounding</b>	<ul style="list-style-type: none"> <li>• Check the power unit is connected to the mains power supply and that the mains switch is turned ON.</li> </ul>
<b>The power unit is operating but the mattress is not alternating</b>	<ul style="list-style-type: none"> <li>• Ensure that the mattress inflation process is complete.</li> <li>• Check that the ‘Alternate’ indicator on the control panel is illuminated. If not, press Function Select Button to switch to Alternating mode.</li> </ul>
<b>Power unit is noisy</b>	<ul style="list-style-type: none"> <li>• Ensure that the power unit is resting against a solid surface.</li> </ul>

If the problem persists, contact Ultimate Healthcare or your local service provider.

## 11 . Cleaning and Decontamination

The following processes are recommended, but should be adapted to comply with the local or national guidelines (Decontamination of Medical Devices) which may apply within the Healthcare Facility of use.

The system should be routinely decontaminated between patients and at regular intervals while in use; as is good practice for all reusable medical devices.



- *Warning: Disconnect the power unit from the electricity supply before carrying out cleaning/decontamination procedures.*
- *Do not immerse or soak power unit.*

### 11.1 Basic cleaning information



- *Caution: Only use disinfectants designed for cleaning healthcare equipment i.e. Sodium Hypochlorite or similar (up to 10,000 ppm available chlorine).*



- *Caution: Do not use abrasives (scouring powder), scourers or other materials/agents which could damage the mattress system.*
- *Caution: Do not use sodium carbonate or phenol based solutions.*
- *Caution: Do not use fabric softener or biological washing detergents.*
- *Caution: Do not immerse the power unit in water.*



- *Caution: When cleaning/disinfecting, ensure that only a damp cloth is used.*
- *Caution: After cleaning, dry the mattress out of direct exposure to sunlight.*



- *Caution: Using inappropriate detergents or disinfectants and not observing the manufacturer's guidelines may result in damage to the mattress which Ultimate Healthcare cannot be held liable for.*



- *Caution: The appropriate qualified staff must be consulted when specifying a suitable cleaning fluid. Ultimate Healthcare shall not be liable for any damages caused by the use of inappropriate detergents or disinfectants.*

### 11.2 Mattress and cover disinfection

The Diversi-Foam Hybrid mattress, mattress cover and air pipe cover can be cleaned using the following simple procedures in accordance with your Local Infection Control Policy:

- Liberally swabbing with a damp cloth pre-soaked with hot water at 84°C containing detergent, and then drying.
- Swabbing with a solution of sodium hypochlorite (up to 10,000 parts per million available chlorine) and then drying.



- *Caution: Frequent or prolonged exposure to higher concentration disinfectant solutions may prematurely age the fabric cover of mattresses. Surfaces must be protected during use and rinsed and thoroughly dried after application of a disinfectant.*

## 11.3 Power unit disinfection

The power unit can be cleaned by wiping down with a cloth dampened with hot water at 60°C containing detergent or with sodium hypochlorite (up to 10,000 parts per million available chlorine).

## 11.4 Cover laundering

The mattress cover and air pipe cover can also be machine washed. Mattress covers and air pipe cover should be completely removed prior to laundering.

Where required mattress covers can be laundered in a pre-wash at 84°C for up to 15 minutes and in a main wash at 60°C for up to 15 minutes. This should be followed by a cold rinse and extraction.

However it is recommended that you check your local policy to determine the time/temperature ratio required to achieve thermal disinfection.

Mattress covers may be tumble dried or air dried. They may be tumble dried on a low heat for up to 90 minutes. Drying temperature must not exceed 40°C.

The mattress cover and mattress must be dry prior to refitting.



- Caution: Exceeding the temperature can cause significant damage to the mattress cover.

## 12. Storage

The mattress should be stored taking care not to strain the air pipe. It should then be placed in in a suitable protective cover with the power unit and stored in an area appropriate for electronic medical devices.

- To quickly extract air out from mattress for storage, pull the CPR tag to remove the CPR plugs and disconnect the air hose connector to release the air.
- Lay the mattress out flat.
- The power cord could be wrapped around the power unit bumper or disconnected for storage.

## 13. Service and Maintenance

It is recommended that this product be part of a routine preventative maintenance schedule with a planned service every 12 months regardless of product usage.

### 13.1 General

- (1) Check power cable and plug if there are abrasions or excessive wears.

- (2) Check mattress cover for signs of wear or damage. Ensure mattress cover and tubes are stubbed together correctly.
- (3) Check the air hoses for any kink or break. For replacement, please contact Ultimate Healthcare or your local distributor.

## 13.2 Fuse replacement

- (1) Disconnect the plug from mains power when a blown fuse is suspected.
- (2) Remove the cover of the fuse holder by means of a small screwdriver.
- (3) Insert a new fuse of the correct rating in, and replace the cover of the fuse holder back. The fuse should be rated as T1a/250V.

## 13.3 Air filter replacement

- (1) Replace the air filter located at the handle on the back of the power unit.
- (2) The filter is reusable and can be washed gently with a mild detergent and water. Dry the filter before use.
- (3) Check and replace air filter regularly if environment is dirty.

# 14. EMC Guidance and Declaration

Alternating Pressure Mattress Pump, Model No: HF609  
EMC Compliant with and tested to:  
EN55011:2009  
EN60601-1-2:2015  
EN61000-3-2:2014  
EN61000-3-3:2013

Test Report & reference No:  
LCS171128004CE  
LCSEMC-1.0

Electrical Ratings:  
220-240V AC  
50Hz  
70mA  
7W

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