The Dyna-Form SMARTresponse is a pressure relieving mattress and pump system 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 40 stone / 254kg, 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

Dyna-Form SMARTresponse is an innovative solution in the prevention and treatment of pressure ulcers. It offers effective dual therapy in a single surface by combining advanced, clinically proven technologies previously only available in separate hybrid surfaces. Advanced air displacement technology incorporated into a unique 4 zone configuration now provides more effective pressure redistribution.

When used in non-powered mode, clinically proven advanced air displacement technology continually optimises and improves pressure redistribution in response to patient body weight and movement. The unique ‘air only’ heel zone effectively offloads pressure on the vulnerable heel area.

When used in powered/dynamic mode Dyna-Form SMARTresponse delivers pressure relief via a series of connected alternating foam and air cells. Unencumbered by a top layer of foam on the mattress, the unique ‘foam in air cell’ construction ensures the delivery of effective pressure relieving therapy. Dependent on clinical judgement, the alternating function can be operated on either a Low or High Pressure.

The digital Control Unit controls air flow into, or out of the air cells as required according to the selected operating mode. It also maintains the air pressure within the mattress at the required level and controls the action of the Audible/Visual Warning System in the event of mains supply failure or over or under inflation pressure.

2. Indications/Contraindications for Use

2.1 Intended Use

Dyna-Form SMARTresponse is a mattress replacement system designed to offer pressure relief and prevention of pressure sores to patients spending the majority of their time in bed.

The intended patient population is for individuals aged between Paediatric – Geriatric with a body weight >10kg.

2.2 Contraindications

The Dyna-Form SMARTresponse Mattress System should not be used for patients with unstable fractures, gross oedema, burns or intolerance to motion.

3. Quick Reference Guide (Frequently used functions)

This is a quick reference guide for the SMARTresponse System

Product Code PUM1610001

SMARTresponse Control Unit (Pump)

Power Switch/Audible Warning Reset

The power switch simply switches the mains power to the Control Unit on and off. When the Control Unit detects an Audible Warning condition, this can be silenced (see below) and reset by switching the Control Unit off and then back on 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.

LED Mode Settings

This symbol is used to represent Manual mode. When illuminated (the orange indicator light) is used to indicate that the equipment is on or ready for use and also to identify which of the functions of the pump is operation.

When a patient requires a true dynamic function or indeed more pressure in the cells, as they may be uncomfortable or feel as though the support surface is too soft or unstable, then please select a “H” setting (pressure 26mmHg). This must only be used by a trained clinician as too high pressures can further agitate certain patient conditions.

When a patient requires less pressure in the cells, as they may be uncomfortable or indeed hyper sensitive to cell movement or indeed if the patient is still reddening further, then please select a “L” setting (pressure 18mmHg). This must only be used by a trained clinician.

A red indicator light signals a warning, notifying that an immediate response is required.

An orange indicator light signals that a particular mode has been selected or to notify of a necessary service that does not require immediate or prompt action.
To confirm selection, hold down the Auto Start button for 3 seconds. If the weight of the individual lying on the mattress is not known, than an auto calibration can be selected that will determine the user’s weight. Calibration can take approximately 12 minutes.

To toggle user weight selection on the weight selection screen, simply continue to press the Alert Me button until the appropriate option is displayed on the screen: 0-45kg, 45-65kg, 65-85kg, Above 85kg and Auto Calibrate.

To confirm selection, hold down the Alert Me button for 3 seconds. If less than 3 full body movements (torso turns) detected in an hour, the carer will be sent a notification with the option of turning on the pump.

If the carer does not respond to the alert in 15 minutes another notification will be sent to them via the app.

If the customer does not respond to the second message alert, the pump will sound with an audible warning and display on the front pump Bed Exit Detected.

The only feature that allows clinician remote access interaction with the pump control unit is the “Alert Me” function. This function allows the clinician to “Step Up” care by turning on the alternation system when requested to do so by the pump control unit.

All functions are for monitoring purposes only and should not replace regular assessment and turning by a trained clinician.

For detailed instructions in the use of the SMARTresponse app, please refer to separate app user manual.

This can be located on the Direct Healthcare Group website: www.directhealthcaregroup.com.

Note: Please ensure (when available) that all securing straps on the base of the mattress are secured onto the moving parts of the bed frame.

For shut down procedure, see 6.2 Control Unit section.

4. Warnings and Cautions

General Information (Caution) (Warning)
- There are no special skills required to operate the system.
- The Medical Professional is responsible for applying his/her best medical judgment when using the system.
- The electricity supply is of the type indicated on the control unit.
- Check the mains lead is free from damage and is positioned so as not to cause an obstruction, or injury. E.g. Strangulation of a child or trip hazard.
- Ensure the mains lead cannot become trapped or crushed, e.g. by raising or lowering of the bed or bed rails or any other moving object.
- The Control Unit must only be used with a suitable approved power cord and plug set as supplied by DHG.
- The system is not to be used in the presence of flammable anaesthetics.
- Ensure the Control Unit is not exposed to: 1. Excessive heat sources e.g. fires, radiators etc. 2. Water, particularly immersion.
- Suitable for continuous use.
- Not suitable for sterilisation.
- Do not position the Control Unit to make it difficult to disconnect the power supply or plug.
- Do not place the Mattress on or close to a source of heat (i.e. a radiator) as this excessive exposure to heat may weaken the cell material.
- Do not use with hot water bottles or electric blankets.
- DHG strongly advise against smoking whilst the Control Unit is in use. This is to prevent accidental secondary ignition of items which may be flammable e.g. bed linen. The materials used in the manufacture of the Dyna-Form SMARTresponse System comply with the required fire safety regulations.
- Do not use sharp objects on or near the mattress system as this will cause damage.
- Do not store in damp conditions.
- Do not use in an oxygen enriched environment.
- Not suitable for use in an Outdoor Environment.
- Intended for both Home Healthcare and Professional Healthcare environments.
- Do not connect to any other medical device or equipment.
- Correct fuse rating MUST be used. Failure to do so could result in the risk of a fire.
• The System should be cleaned after use or between patients. Refer to Cleaning section.
• There is a risk that the user or an operator may be exposed to bodily fluids.
• All internal and external hoses must be free of twists, kinks. The external hose should also be properly connected and positioned so that the risk of obstruction or injury is eliminated.
• Do not use bleach, phenols, Chlorine based products which exceed 1000ppm. Solvents or alcohol based cleaners.
• All above warnings and cautions together with safety considerations should be observed at ALL times during its use.
• Select correct setting ‘High’ or ‘Low’ as required. Care should be taken not to accidentally change settings once set. This may affect the desired requirement of the therapy. This could also be caused by pets, pests or children.
• This device does not emit radiation.

5. Installation
5.1 Mattress (This is the applied part type BF)
The device should only be installed and used by a clinician or a trained lay operator. A lay operator shall be considered trained once they have fully read this user manual.

The temperature of the Control Unit may have decreased or increased, whilst in storage or during transportation, beyond the limits of the allowable operating temperatures. Do not use the Control Unit until it has been at room temperature (c.20°C) for at least two (2) hours. This time is required for all components of the Control Unit to reach the normal, recommended operating temperature.

Place the Dyna-Form SMART response Mattress 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. Note: The umbilical hose can be located inside the cover under the “Open Here for Air Inlet” printed in the bottom left hand corner of the mattress. Typically the mattress user will be placed in a supine position on the mattress. Wipe the mattress down before covering the mattress with a loose-fitting sheet.

Static Mattress Use
The Dyna-Form SMART response Mattress can be used as a pressure reducing mattress for patients at High Risk of pressure ulcer damage without the need to attach the Control Unit.

Alternating Mattress Use
If / When required, the Dyna-Form SMART response Mattress can be used as an alternating mattress system by attaching the Dyna-Form SMART response Control Unit system.

No other system should be attached to the mattress as the design settings and internal air pressure properties of the Dyna-Form SMART response Control Unit are specific to this mattress only.

The Dyna-Form SMART response is a replacement mattress system and should NOT be placed on top of any existing mattress.

5.2 Control Unit
Hang the Control Unit onto the footboard, ensuring that the position of the Control Unit does not make it difficult to disconnect the device if required. The mounting hooks swivel to suit the thickness of the footboard or rail. Connecting the Umbilical Hose to the Control Unit, place the supplied 3-pin electrical plug into the wall outlet and switch on:
(a) Open the zip located at the bottom left hand side of the mattress and pull out the Blue Umbilical hose.
(b) Attach the Blue Umbilical Hose to the Control Unit 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 Control Unit. Ensure that the Red CPR Release button is located on top of the Air Inlet connector after connection is complete.
(c) Re-close the zip as far as possible without clamping the Blue Umbilical Hose to ensure the mattress and air cells are sealed within the cover.

The expected operator position of the control unit is from the foot end of the bed. The expected position of the mattress user under normal use is centrally placed on the mattress in the supine, side lying or prone position.

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

Power cables not supplied by Direct Healthcare Group are not recommended for use with this Control Unit. 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 Control Unit using the on/off switch.

Once the Control Unit has been turned on, the word “Hello” is displayed on the front screen panel symbolising its initialisation.

After this the pump would revert to the Manual mode “High” (26mmHg) and attain that operating pressure.

To cease operation of the device, simply turn the switch located at the side of the pump to the off position.

Upon first use of the mattress and control unit together they must be paired. To pair the mattress and control unit, ensure that the control unit is connected to the mattress via the tubeset and the control unit is powered on. Keep the Bed Exit button pressed for 7 seconds to start pairing. This must be performed on first operation prior to a patient laying down on the mattress.

6.1 Static (S) / Low (L) / High (H) Settings
The SMART response pump, in Alternating Mode, has two pressure settings “High” (H) and “Low” (L) (18mmHg & 26mmHg) and also has a Continuous Low Pressure mode (6mmHg) referred to as Static (S).

The initial setting that the control unit will revert to upon set up is “High” (26mmHg).

The “Low” 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 “High” setting is selected by pressing the “M” button, which is located on top of the Control Unit, until the LED light under “H” is illuminated.

In “High” Mode the Control Unit attains more of the characteristics of an alternating air mattress system whilst still utilising the advantages of the static foam inserts. Repeatedly pressing the “mode” button enables the Static, Low or High modes to be selected in turn.

WARNING: High and Low modes should only be used by a trained clinician.

6.2 CPR Deflation
The CPR system consists of a manually operated tag located on the blue umbilical attached to the Control Unit.

Pulling the red CPR Tag will deflate the mattress air system back to that of a static foam mattress. Warning: Removal of the Dual Function Connector alone will not expel air as quickly as the CPR Tag.

Do not rely on the Dual Function Connector for CPR, always use the CPR Tag to expel air from the mattress quickly.
Note: After a short period as the Mattress deflates the ‘Low Pressure’ Audible Warning is activated and can be cancelled by switching the Control Unit off.

6.3 Troubleshooting
For assistance (if needed) in setting up, using or maintaining the Dyna-Form SMARTresponse System, or to report unexpected operation or events, please contact Direct Healthcare Group on the contact details on the reverse of this manual.

7. Audible/Visual Indicators
Warning conditions are indicated by a flashing red display accompanied by an Audible/Visual Indicator and a message on the pump interface. In each case the user should respond by turning the Control Unit’s switch off and investigating the cause. Full details of the warnings can be found in Troubleshooting (pg 12).

7.1 High Pressure Indicator
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 Indicator
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 Indicator
This condition may be caused, for example if mains power is lost.

7.4 Alternating Mode Failure (no alternation)
This condition may be caused, for example if Mains power is lost.

7.5 Initialising Failure
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.

8. 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 Control Unit 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 Control Unit switched back on. Once the Mattress has been refilled, the ‘Alternating’ mode will automatically revert back to the Low setting and should be reset to High should this be desired by the clinician.

Warning: The Mattress will not ‘alternate’ when disconnected from Control Unit and/or the mains electrical. Also, refer to environmental conditions section at rear of this manual.

9. Cleaning & Maintenance Procedures

9.1 Cleaning Procedures
Warning: Before cleaning the System make sure that the Control Unit is disconnected from the mains electricity supply.

1. Reset the Warning – turn off Power and press the Audible Warning mute button.
2. Disconnect the air hoses to reduce pressure – reconnect when pressure has decreased.

9.1.1 Cleaning the Mattress
1. Cleaning should take place before and after use, and between patients.
2. With cover left on the Mattress disconnect the Mattress from the Control Unit.
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. Use a Hypochlorite solution 1,000 parts per million available chloride. For heavy contamination use a Hypochlorite solutions 10,000 parts per million available chloride. Please ensure thorough rinsing after cleaning.
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 80-90 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 coverline 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.

9.1.2 Cleaning the Control Unit
The Control Unit can be cleaned by wiping with a cloth dampened with a detergent solution with the above recommended DiffX dissolved within a spray bottle filled with 500ml of warm water. Also, refer to symbol chart.

9.2 Maintenance
The Control Unit has a light that when illuminated indicates a Service is required.

Change the air filter: Remove air filter holder by pressing the plastic catch downwards and lifting the air filter holder up. Take out the filter and put in a new one and put the filter holder back.

9.3 Servicing
Direct Healthcare Group recommend that the control unit be serviced annually from installation. The service light will illuminate after 8760 hours of operation (one year of continuous operation). The unit contains no user serviceable parts. For service, maintenance and any questions regarding this please contact DHG.
10. Troubleshooting

<table>
<thead>
<tr>
<th>Warning / Fault</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Unit Does Not Operate; No Display Lights Illuminate</td>
<td>The Control Unit may not be attached to a power source or a fuse may need replacing.</td>
<td>1. Check the Control Unit is connected to mains power outlet with the correct voltage. 2. Check the Control Unit is switched on. Switch off and unplug the unit before restarting. 3. Check the mains plug fuse (5 AMP) then check both Control Unit fuses (1 AMP) — fuses can be released using a screwdriver to push and turn. Do not try to open the Control Unit. Opening the unit could cause personal injury or equipment damage. Ensure the replacement of fuses is carried out accordance with local legislation.</td>
</tr>
</tbody>
</table>

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + No Message On Pump | Mains failure / Other See above, plus: | 1. Check the Control Unit is connected to mains power outlet with the correct voltage. 2. Check the Control Unit is switched on. Switch off and unplug the unit before restarting. 3. Check the mains plug fuse (5 AMP) then check both Control Unit fuses (1 AMP) — fuses can be released using a screwdriver to push and turn. Do not try to open the Control Unit. Opening the unit could cause personal injury or equipment damage. Ensure the replacement of fuses is carried out accordance with local legislation. |

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + “Pressure Too Low” Message On Pump | Pressure too low | 1. Reset the warning — turn off power and press the Audible Warning mute button. 2. Check that the CPR connector is firmly attached to the Control Unit (located on the left of the Control Unit case). Check all air hoses along the inside of the mattress — each should be firmly connected. Check each air cell is securely attached to its connecting air pipe. 3. Check all cells, pipes and hoses for any air leakage. 4. Check that the air filter cover is correctly secured and the air filter is clean. 5. Switch on power. |

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + “Air Pipe Kinked” Message On Pump | Pressure too low / Air pipe kinked | 1. Check blue external umbilical air pipe that is between mattress and CPR connector is not kinked, twisted or damaged. 2. Check all air hoses along the inside of the mattress — each should be firmly connected. 3. Check each air cell is securely attached to its connecting air pipe. |

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + “Pressure Too High” Message On Pump | Pressure too high | 1. Reset the warning — turn off power and press the Audible Warning button. 2. Disconnect the air hoses to reduce pressure, reconnect when pressure has decreased. 3. Check for twists in the air hoses between Mattress and Control Unit. |

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + “Alternating Mode Failure” Message On Pump | Mattress fails to alternate | 1. Contact an engineer |

| Audible Warning Indicator Light + Continuous Beep Audible Warning Indicator + “Initialising Failure” Message On Pump | Control unit fails to initialise | 1. Contact an engineer |

11. Technical Specification

Declaration — Electromagnetic Emissions — for all ME EQUIPMENT and ME SYSTEMS

<table>
<thead>
<tr>
<th>Emission Test</th>
<th>Compliance</th>
<th>Electromagnetic Environment — Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions</td>
<td>CISPR 11</td>
<td>Group 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The system uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>RF emission</td>
<td>CISPR 11</td>
<td>Class B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The system is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>Harmonic emissions</td>
<td>IEC 61000-3-2</td>
<td>Class A</td>
</tr>
<tr>
<td>Voltage fluctuations/flicker emissions</td>
<td>IEC 61000-3-3</td>
<td>Complies</td>
</tr>
</tbody>
</table>
### 11. Technical Specification

#### Declaration – Electromagnetic Immunity

The PUM1610001 is intended for use in the electromagnetic environment specified below. The customer or the user of the system should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment – Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>IEC 61000-4-2</td>
<td>±6 kV contact</td>
<td>Floors should be wood, concrete or ceramic tile.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±8 kV air</td>
<td>If floor are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>Electrical fast transient/burst</td>
<td>IEC 61000-4-4</td>
<td>±2 kV for power supply lines</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±1 kV for input/output line(s)</td>
<td></td>
</tr>
<tr>
<td>Surge Immunity Test</td>
<td>IEC 61000-4-5</td>
<td>±1 kV line(s) to line(s)</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±1 kV differential mode</td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions and voltage variations on power supply input lines</td>
<td>IEC 61000-4-11</td>
<td>Voltage Dips %U T</td>
<td>Period (Cycles)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;95</td>
<td>0.5</td>
</tr>
<tr>
<td>Voltage Interruption % U T</td>
<td>Seconds</td>
<td>Voltage Interruption % U T</td>
<td>Seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>&gt;95</td>
</tr>
<tr>
<td>Power frequency (50Hz) magnetic field</td>
<td>IEC 61000-4-8</td>
<td>3 A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 A/m</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE U T is the a.c. mains voltage prior to application of the test level.**

### 11. Technical Specification

#### Declaration – Electromagnetic Immunity – for ME EQUIPMENT and ME SYSTEMS that are not LIFE-SUPPORTING

The PUM1610001 is intended for use in the electromagnetic environment specified below. The customer or the user of the system should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment – Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6</td>
<td>3 Vrms</td>
<td>Portable and mobile RF communications equipment should be used no closer to any part of the CT515, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance d = 1167\sqrt{P}.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 kHz to 80 MHz</td>
<td>Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</td>
</tr>
<tr>
<td>Radiated RF</td>
<td>IEC 61000-4-3</td>
<td>3 V/m (Professional Healthcare Environment)</td>
<td>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 V/m (Home Healthcare Environment)</td>
<td>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80 MHz at 2.7 GHz</td>
<td>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</td>
</tr>
</tbody>
</table>

**NOTE 1** At 80 MHz and 800 MHz, the higher frequency range applies.

**NOTE 2** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Span system is used exceeds the applicable RF compliance level above, the system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as relocating or reorienting the system.

b. Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m.
11. Technical Specification

Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT
or SYSTEM – for ME EQUIPMENT or ME SYSTEM that are not LIFE – SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the PUM1610001
Alternating Control Unit.

The PUM1610001 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled.
The customer or the user of the system can help prevent electromagnetic interference by maintaining a minimum distance between
portable and mobile RF communications equipment (transmitters) and the system as recommended below, according to the maximum
output power of the communications equipment.

<table>
<thead>
<tr>
<th>Rated maximum output power of transmitter (W)</th>
<th>Separation distance according to frequency of transmitter (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 kHz to 80 MHz</td>
<td>80 MHz to 800 MHz</td>
</tr>
<tr>
<td>d = 1.167√P</td>
<td>d = 1.167√P</td>
</tr>
<tr>
<td>0.01</td>
<td>0.117</td>
</tr>
<tr>
<td>0.1</td>
<td>0.369</td>
</tr>
<tr>
<td>1</td>
<td>1.167</td>
</tr>
<tr>
<td>10</td>
<td>3.689</td>
</tr>
<tr>
<td>100</td>
<td>11.667</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be
estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the
transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection
from structures, objects and people.

12. Technical Data

12.1 Control Unit

Serial Number ......................... As per label on rear of Control Unit
Electrical Supply ...................... 220 – 240 volts, 50 Hz
Power Consumption .................... 0.01 – 0.117 W
Fuses ................................. TA1H 250V
Protection against shock .......... Class 2
Noise Level ......................... Approx. 35 dB (A)
Dimensions ......................... 245 x 160 x 95 mm
Weight ................................ 2.5 kg
Service Interval ...................... 12 months / 8760 hours
Expected life ......................... 5 years
Shelf life of parts .................... 5 years

12.2 Mattress

Serial Number ......................... Label on inside of mattress cover
Number of Air Cells ............... 14 Air Cells / 1 Static Foam Foam
Dimensions ......................... 1980 x 880 x 150mm (Nominal)
Weight ................................ 13.3kg
Expected life of Mattress .......... 5 years
Shelf life of Mattress parts .......... 5 years
Biocompatibility ..................... No exposure to harmful materials as tested to ISO10993

13. Optimum Conditions

(Appplies to Mattress and Control Unit)

13.1 Environment Conditions for Use

Transport ................................ -25°C - +70°C
Storage ............................. -25°C - +70°C
Usage ................................ +5°C - +40°C
Humidity ................................ 15% - 90%
Atmospheric Pressure ............. 700hPa - 1060hPa
Altitude ................................ ≤ 3000m

13.2 Exposure

Exposure to direct sunlight, dust, lint and general debris is not considered to be an issue with this System.
15. Detachable/Removable Parts

1. Mattress (Detached from the Control Unit by removing the CPR connector). Part No. MAT1620002 (or variants of for the size).
   Electric power cable. (Removed from the Control Unit by pulling the cable away from the mains inlet on the side of the Control Unit.
   Part No. SP021016

   N.B. The battery is an integral part of the PCB and is not removable or changeable.

   Caution
   Use of detachable parts not listed is not recommended by Direct Healthcare Group.

16. Disposal

All contaminated mattresses must be disposed of as clinical waste in accordance with regional and local regulation and guidelines.
Control Units are electrical/electronic medical devices and must be disposed of in line with the Waste Electrical and Electronic Equipment Directive (WEEE).

Please refer to www.directhealthcaregroup.com for recommendations and responsibilities for disposal within the UK WEEE guidelines.