

13. MAINTENANCE INSTRUCTIONS

The Controller should be serviced every 2 years - contact Nexus DMS Ltd.

Pressure Sensors - these can be adjusted ONLY by trained technical staff - contact Nexus DMS Ltd for advice.

Battery

Estimated lifespan of the battery is approx. 2 years - depending on usage.

To ensure correct operation of the Controller you must check battery condition regularly. If not sure of it's condition then carry out the following test:

1. Turn off the Controller at the Operate/Stand-by switch.
2. Charge the battery for 24 hours. When charged, remove the mains lead.
3. Disconnect the air tubes from the Controller, switch on & press 'Normal'.
4. Allow the Controller to run on battery. If it runs for at least 7 minutes then the battery is in good condition. If not, contact Nexus DMS Ltd.

Replacing the cells Each of the surface cells is replaceable & can be changed separately. Remove the 3 white plastic retaining strips from each side of the damaged cell - 6 in total (these attach the surface cell to the base mat).

Remove the damaged cell and replace with a new pre-filled cell.

Always use new retaining strips when replacing a cell.

Replacement parts can be ordered from Nexus DMS Ltd.

Controller The Controller is designed for long-term use but it does contain fragile components & these can be damaged if the unit is dropped or otherwise abused.

The product warranty does not cover items which have been handled badly.

14. WARRANTY

The Optima system is guaranteed for 1 year from the date of manufacture (the battery carries a 6-month guarantee). This guarantee covers any materials or manufacturing fault but not faults caused by improper use, mis-handling or repairs by unauthorised persons. The guarantee does not cover any carriage charges. If making a claim you must quote the unique product serial numbers shown on the labels attached to the mattress & to the controller. (see Page 3)

15. TECHNICAL INFORMATION

SIZE / WEIGHT: Surface - 200x85x13cm or 200x113x13cm Weight - 7 / 11kg
Controller - 8x10x32cm Weight - 2.4kg

RATED VOLTAGE: 230V/50HZ, 100V/50HZ, 120V/60HZ

RATED INPUT POWER: max. 35w

PROTECTION CLASS: 1

APPLIED PART: type B

IP RATING: IP20 (not protected against ingress of water). Possible explosion hazard if used in presence of flammable anaesthetics.

SAFETY: EN60601-1 EMC: EN60601-1-2

Optima fulfils the requirements of the directive 93/42/EEC (Medical Devices), Class I

Carital products are distributed in the UK solely by:
**Nexus DMS Ltd, Unit 11, Lovett Road, Hampton Lovett Ind. Estate,
Droitwich, Worcs, UK. WR9 0QG**
Tel: +44 (0) 19 05 77 46 95 Fax: +44 (0) 19 05 79 60 81
sales@nexusdms.co.uk www.nexusdms.co.uk

Optima

Reactive speciality mattress system.

USER MANUAL

November 2007 edition



NEXUS DMS Ltd

IMPORTANT INFORMATION ABOUT THE OPTIMA SPECIALITY MATTRESS SUPPORT SYSTEM.

This manual contains important information regarding the safe & proper assembly and use of the Optima mattress system. It is important that any persons involved in its set-up, use & care should have read & understood its contents. Failure to do so could result in damage to one or more of the component parts and may invalidate the warranty. Those involved should observe the safe lifting and handling techniques recommended under Health & Safety Regulations.

PAY PARTICULAR ATTENTION TO THE FOLLOWING ADVICE.

PREPARING THE MATTRESS FOR THE FIRST TIME.

- * Ensure that the local electricity mains voltage corresponds to that marked on the controller label before connecting to the supply.
- * The fuse in the mains plug should not exceed 5amps.
- * Before using the system it is recommended that you charge the battery overnight by plugging into a mains power point. It is not necessary to switch on the Controller. Do not connect the air tubes at this stage.

MAINTENANCE & CARE.

- * In use, you should check the condition of the battery regularly.
- * The controller should only be used at normal room temperature (+10 to +30 degrees C).
- * The mattress should be filled only with air.
- * Under no circumstances should you overfill the mattress.
- * Do not lift the mattress by the surface cells.
- * Sharp objects may pierce the mattress - invalidating the warranty.
- * Prolonged exposure to urine can break down the air cell and cover material of the mattress.
- * Do not clean the plastic parts of the mattress with solvents, phenolics or pure alcohols.

SHOULD YOU HAVE ANY DOUBTS THEN PLEASE SEEK ADVICE!

NOTE - throughout the manual panels such as this contain very important information. Please read carefully.

RETAIN THIS USER MANUAL FOR FUTURE REFERENCE

PACKAGE CONTENTS

Open the shipping carton and check that the contents are as follows:

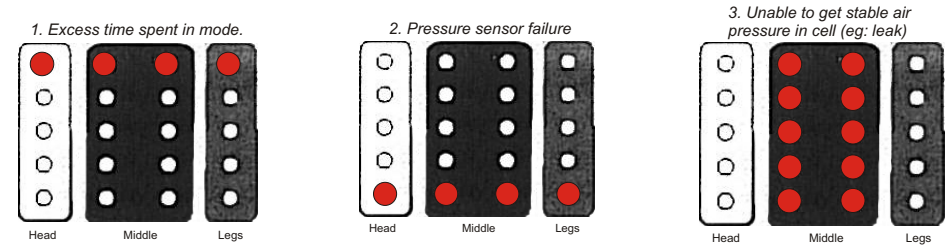
Cell structure; Mattress cover; Controller; Mounting bracket;
Power cable; 3 colour coded air tubes; Air tube sheath; User Manual

IMPORTANT. During transportation the temperature of the Controller can get too low/high. Do not use the Controller before it has been kept at normal room temperature for at least two hours. During this time all components will reach their normal recommended operating temperature.

9. ALARMS



When an alarm is signalled there will be a visual warning by led lights (as shown below) and also be an audible warning. The audible alarm can be stopped by pressing the **Stop** button once. Pressing the button twice will also stop the visual warning. This procedure will also re-set the Controller. The following alarms are signalled:



10. WAIT MODE

After pressing the Stop button to quit the Alarm Mode the Controller returns to the **Wait Mode**. If no other option is selected within 15 seconds then an alarm will be signalled.

4. Battery charge low



11. CLEANING INSTRUCTIONS

11.1 Incontinence Cover - Instructions are printed on the label attached to the mattress cover.



Max. Washing temperature - 95 degrees C (203 degrees F).

Tumble dry temperature - 80 - 100 degrees C (176 - 212 degrees F).

No ironing; No chlorine bleach; Delicate dry cleaning allowed.

In-situ disinfect - wipe by hand using hot water & neutral detergent - max. temperature 70 degrees C (160 degrees F).

Do not use phenolics

Dry thoroughly after cleaning

11.2 Plastic parts

NOTE: if air cells are exposed to urine, the molecular structure of the polyurethane can break down - resulting in a hole in the mattress. Wipe off any urine as soon as possible.

We recommend that the plastic parts of the mattress are washed with normal detergent or disinfectant solution - max. temperature 60 degrees C (140 deg. F)

Leave to dry at room temperature.

Cleanable in disinfectant at up to 60 degrees C (140 degrees F).

ETO-gas sterilization at up to 60 degrees C (140 degrees F).

NO autoclave sterilization.

12. STORAGE

The Optima is an air mattress and can easily be damaged if not stored correctly. You should observe the following precautions:

- * If possible use the original packaging.
- * No sharp or heavy objects on or near the surface.
- * Keep heat sources away from the surface.
- * Do not lay anything on top of the surface
- * Store in a clean & dry location

6.6 SUPINE ONLY MODE



Select **Supine Mode** for users who can only adopt a supine or prone position and who need treatment. In order to achieve maximum pressure relief the Optima Controller adjusts system pressure to the minimum. Once selected, the pressure sensor is tested. If an abnormal deviation is detected an alarm is generated. The same test is also made after each control cycle (ie after all zones are measured and controlled). The middle zone is measured and adjusted first, followed by the leg and head sections. In this mode the system operated without a time limit.

7. USER TRANSFER - Controller connected

When the mattress is connected to the Controller but the Controller is disconnected from the mains power supply then the system operates on it's internal battery.

The battery is designed to last only short periods of time - during user transfer or power outages. The Controller must be connected to the mains power supply at all other times - even if the Operate/Stand-by switch is in the 'off' position. By doing this the battery will be fully charged at all times.

- without Controller.

A user can be transferred without the Controller connected to the mattress. Turn off the Controller at the Operate/Stand-by switch and remove the mains power lead from the Controller.

Disconnect the air tubes at the mattress end. On disconnection the valves close to prevent air loss from the mattress.

NOTE: if you disconnect the air tubes from the Controller then the mattress will deflate.

Remove the Controller with attached air tubes from the bed.

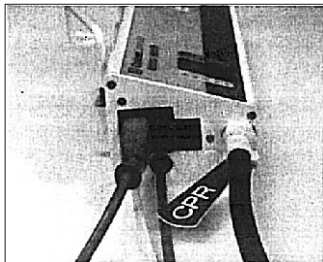
8. CPR FACILITY.

The Optima is a 'closed air cell' system with the user lying stable on the mattress (unlike an alternating mattress system). In the event of cardiac arrest CPR procedures can be carried out immediately on the surface.

However, Optima from Nexus DMS Ltd is supplied complete with CPR facility. This is identified by a red 'CPR' tag attached to the black air tube where it attaches to the Controller.

In the event of cardiac arrest press the grey thumb latch on the CPR coupling and pull away from the Controller - the middle part of the mattress will then deflate.

To re-inflate the mattress replace the coupling



CONTENTS

PAGE

2. **Important information.**
Preparing for use.
Maintenance & care.
Package contents.

3. **Contents.**
Introduction.
Product Serial Numbers.

4. **System diagram.**

5. **Controller schematic.**

6. **System installation.**
Mounting the Controller.
Connecting the power lead.

PAGE

7. **Connecting the air tubes.**

8. **Preparing for operation.**
Operating modes.

9. **Operating modes (contd.)**

10. **User transfers.**
CPR facility.

11. **Alarms**
Cleaning instructions.
Storage.

12. **Maintenance instructions.**
Warranty
Technical information.

INTRODUCTION

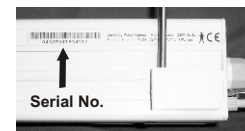
The Optima Speciality Mattress Support system is designed for users who have a high risk of developing pressure sores. When used properly, the mattress is efficient in both prevention and therapy of pressure sores. Optima has a double-cell structure (pat. US 4999867, EP 296689). The upper cells are tunnel shaped and they adapt exactly to different body contours, providing large contact area with the user's body. The inner cells are connected together to form three adjustable zones (head, middle, legs). CPR facility is standard. Optima is suited for use with any electric profiling bed in the Nexus range.

The Optima system comprises 3 main components:

Cell structure surface.
Mattress cover.
Controller.

PRODUCT SERIAL NUMBERS

Both the Controller and the Air-Cell system carry a unique bar-coded Serial Number. It is important to quote these 2 different numbers when contacting Nexus DMS Ltd for assistance.

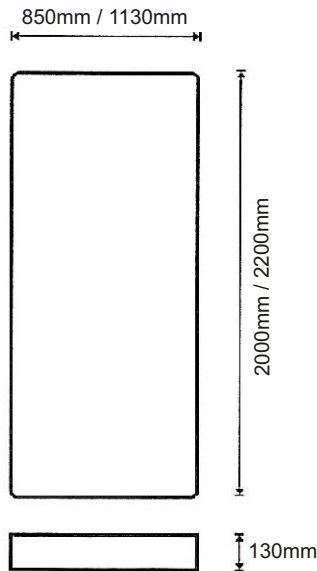
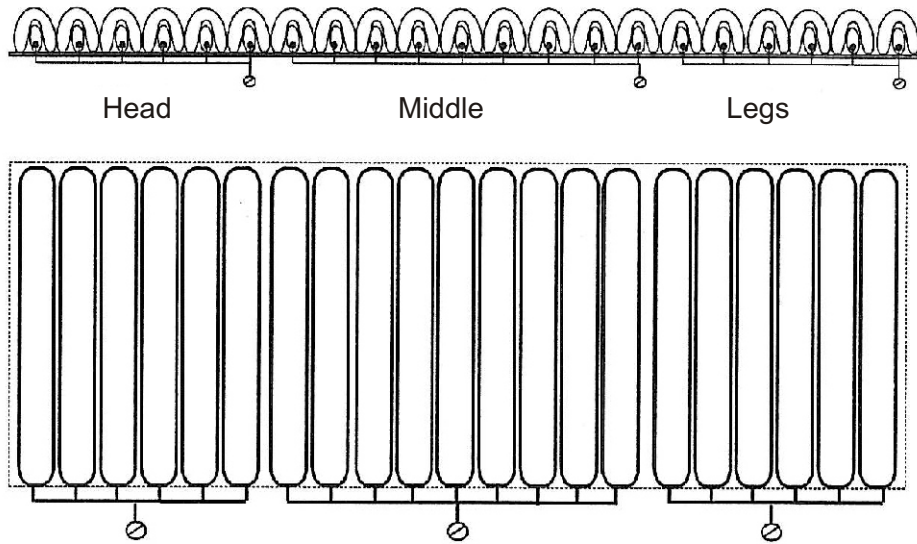


Controller
The Serial Number is located on the rear surface.

Cell System
The Serial Number is located on the clear plastic membrane beneath the cells, at the foot end, adjacent to the air tube inlets.



Optima Air-Float system



6.1 NORMAL MODE

Normal Select the **Normal** mode for high-risk users who can be placed on either their back or side. Once selected, the pressure sensor is tested. If an abnormal deviation is detected an alarm is generated. The same test is also made after each control cycle (ie after all the zones of the mattress are measured and controlled). When **Normal** mode is activated the Controller provides an automatic continuous control for all adjustments - middle zone is measured first, then the leg & head sections. In this mode the system can operate without a time limit.

6.2 S-MODE

S Select **S-Mode** (silent) for users who do not want to be disturbed by any noise. Once selected, the system first adjusts the pressures to the **Normal** mode settings. The pressure deviation limits are then increased to keep the Normal mode system pressure unchanged. The system generates an alarm only if there is an error in the software or a leakage in the air cells of the mattress. When **S-Mode** is selected the Normal *led* will blink.

6.3 SITTING MODE

Sitting Select **Sitting Mode** for users who sit for long periods with the backrest lifted to more than 30 degrees. Once selected, the pressure sensor is tested. If an abnormal deviation is detected then an alarm is generated. The same test is also made after each control cycle (ie after all the zones of the mattress are measured and controlled). The middle zone is measured and adjusted first, followed by the leg and head sections. In this mode the system can operate for up to 60 minutes. If this time limit is exceeded then an alarm is generated.

6.4 Q-MODE IN THE SITTING MODE.

Q When the user must remain in a sitting position for more than 60 minutes and the nursing staff do not want the signal alarm to be generated then **Q-Mode** can be selected. Whilst the alarm will not sound once the 60 minutes is exceeded, the 'Sitting' led will start blinking - as a visual warning to nursing staff of an increased risk to the user.

6.5 FIRM MODE.

Firm **Firm Mode** facilitates nursing tasks by quickly hardening the middle section of the mattress. Once selected, the pressure sensor is tested. If an abnormal deviation is detected an alarm is generated. The same test is also made after each control cycle (ie after all the zones of the mattress are measured and controlled). The middle zone is measured and adjusted first, followed by the leg and head sections. In this mode the system can operate for up to 15 minutes. If no other mode is selected during this period then the system will switch automatically to **Normal Mode** once the 15 minutes has elapsed.

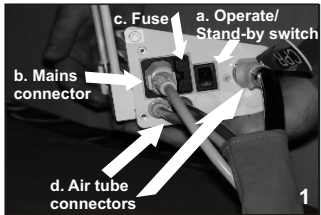
NOTE: Pressure reduction qualities are substantially REDUCED in FIRM mode

5. PREPARING FOR OPERATION

NOTE - to maintain battery condition the mains power lead must remain connected to the Controller at all times (with the exception of power outages and user transfer)

1. Turn on the system using the Operate/Stand-by switch located on the left hand side of the Controller.
2. Allow approx. 35-40 minutes for the mattress to inflate fully.
3. Once the mattress is inflated the Controller performs a system check (approx 10 seconds). Once completed all adjustment zone led's in the middle row should show green and be stable.

NOTE - the mattress must be fully inflated before a user lies on the surface.



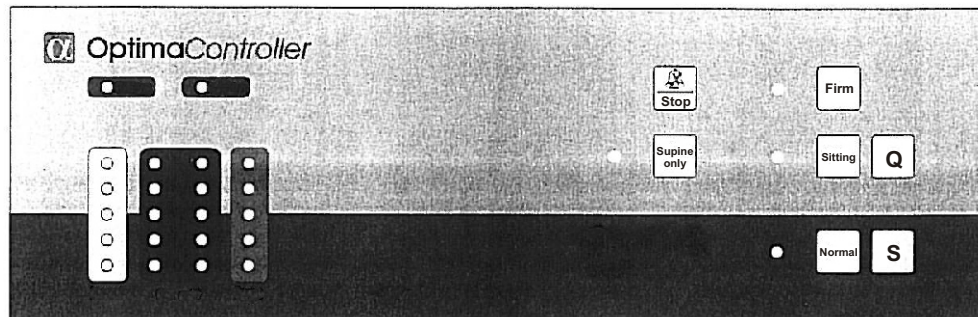
1. Operate / stand-by switch
2. Mains connector
3. Fuse
4. Tube couplings

6. OPERATING MODES FOR THE CONTROLLER

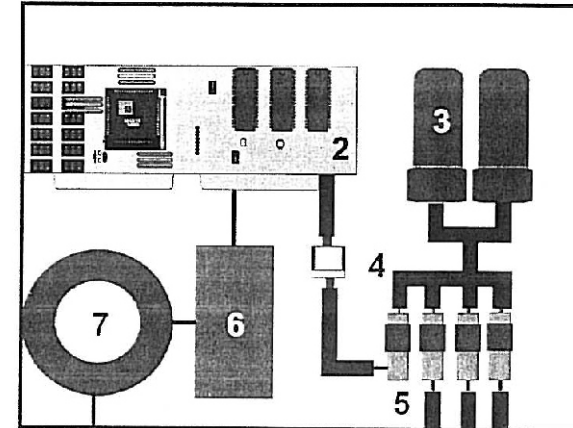
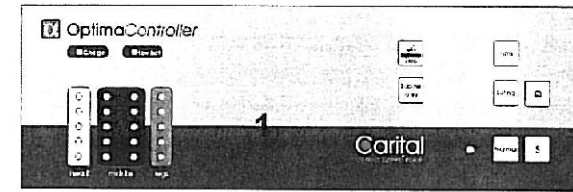
Once the power is switched on the Optima Controller automatically measures and optimally adjusts the air pressure inside the three independent zones of the mattress in the sequence: leg, head, middle.

The Optima Controller can operate in the following modes:

Normal; S-Mode; Sitting; Q-Mode sitting; Firm; Supine only

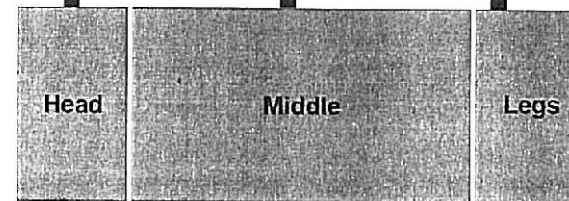


Functional Description of Optima Controller



1. Operating panel
2. Microprocessor Circuit board
3. Air pumps
4. Pressure sensor
5. Magnetic valves
6. Rechargeable battery
7. Transformer

Operating voltage
230V/50HZ
100V/50HZ
120V/60HZ

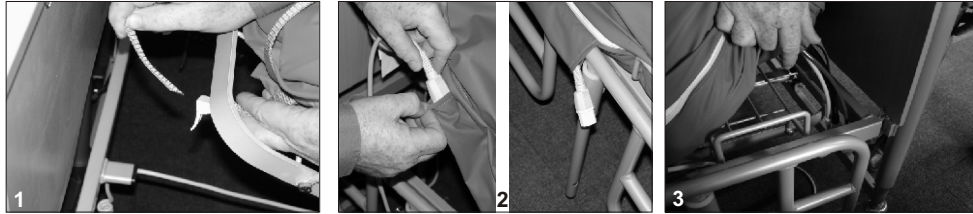


Optima mattress

1. INSTALLATION OF THE SPECIALITY SYSTEM.

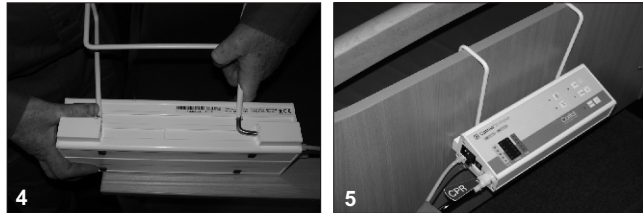
The Optima mattress can safely be placed directly on to the metal mesh mattress support unit of all Nexus profiling beds. After placing in position on the bed:

1. At the head end of the mattress are 2 fixing straps. Each of these should be fastened around the lifting backlift outer tube section (**picture 1**). Do not fasten too tightly - the mattress cover should not be pulled or stretched when fastened.
2. On the right hand side of the cover there is a special channel for the power cord. This will keep it off the floor - avoiding a tripping hazard or damage to the cable. Feed the moulded 3-pin socket through the channel from the head end until it appears at the foot end ready for connecting to the Controller (**picture 2**).
3. The air tubes exit the mattress at the foot end - right hand side (**picture 3**).



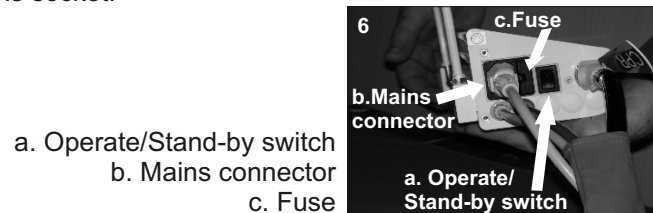
2. MOUNTING THE CONTROLLER.

1. Fit the mounting bracket by sliding each end into it's corresponding hole in the fixed mounting point on the Controller (**picture 4**).
2. Hang the Controller over the footboard of the bed.



3. CONNECTING THE MAINS POWER LEAD

1. Connect the moulded 3-pin socket to the connector on the Controller and plug the 13amp plug into a mains socket.



4. CONNECTING THE AIR TUBES.

NOTE - it is important to connect the 3 air tubes to the Controller BEFORE connecting to the mattress

1. Slide the 3 air tubes through the sheath supplied (**picture 1**).
2. The thinner red & yellow air tubes have a screw fixing at one end - for the Controller and a 'push & turn' connector at the other end - for the mattress. Fasten the screw ends of the red & yellow sheathed tubes to the Controller - matching red to red & yellow to yellow. Fasten firmly but do not over-tighten.
3. The thicker black 'CPR' tube connects to the Controller by bayonet connector - simply push into place until it 'clicks' to lock in place. Ensure that the CPR tag is situated at the Controller end of the black tube.
4. Ensure that the tubes exiting the mattress are fed downwards within the metal framework of the mattress support unit.
Do not hang over the side of the bed (**picture 2**).
5. Now connect the 'sheathed' red & yellow air tubes to the corresponding tubes from the mattress using a gentle 'push to fit, turn to lock' action (**picture 3**).
6. The black tubes connect together using a bayonet connector - push together until they 'click' to lock in place (**picture 4**).

KEY: Yellow - Head section; Black - Middle section; Red - feet section

