

## microAIR® MA800 Alternating Pressure Low Air Loss Mattress System

## **User Manual**



This manual MUST be given to the user of the product.

BEFORE using this product, this manual MUST be read and saved for future reference.

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## 1. Safety

The safety section contains important information for the safe operation and use of this product. Read this information and any other safety information included with the product.

## **∆Warning**

- Connect the Master Control unit to a proper power source.
- Don't use the system in the presence of any flammable gases (such as Anesthetic Agents).
- Keep the pump and mattress away from open flame.
- Keep sharp objects away from the mattress.
- The device is not AP/APG protected.
- Do not place a heating device on or close to the mattress system.
- Use the product only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
- If pain, irritation, numbness, swelling, or redness occurs discontinue use and contact a healthcare professional.
- This device can be used in home healthcare and professional healthcare environment.
- This device should not be used adjacent to or stacked with other equipment.
- Medical electrical equipment needs special precautions regarding EMC and needs to be installed according to the EMC information provided.
- The product should never be left unattended when plugged in.
- Close supervision is necessary when the product is used by, on, near children or physically challenged individuals.
- Never block the air opening of this product or place it on a soft surface, such as a bed or couch, where the air openings may be blocked. Keep the air openings free of lint, hair, and other similar debris.
- Never drop or insert objects into any openings.
- DISCONNECT POWER SUPPLY BEFORE OPENING.
- Power cable & pump shall be placed at the foot-side of the patient to prevent any risk of strangulation due to cable.
- Please ensure the microAIR® MA800 Alternating Pressure Low Air Loss Mattress System is used with stable power or in connection with UPS.
- To reduce the risk of electrocution:

Always unplug product immediately after use.

Do not use while bathing.

Do not place or store product where it can fall or be pulled into a tub or sink. Do not place in or drop into water or other liquids.

Do not reach for product that has fallen into water. <u>Unplug immediately</u>.

## $\triangle$ Caution

- The mattress system should always be used in accordance with your Institution's pressure care guidelines.
- Re-positioning of the patient is always recommended when using an alternating pressure air mattress (APAM).
- The Control unit can only be repaired by an authorized technician.
- Do not drop the control unit.
- Do not store the system in direct sunlight or extreme cold conditions.

## 2. The Purpose of this Manual

This operation manual is mainly focused on the set up, cleaning and routine maintenance of the microAIR® MA800 Alternating Pressure Low Air Loss Mattress System. We recommend you keeping this manual handy to answer most of the question related to the system.

## 3. Intended Use

The microAIR® MA800 system is intended for patients who are at risk of developing pressure ulcers according to your sound clinical judgment. The device can also be used for patients who have an existing stage 1, 2, 3, and 4 pressure ulcers, in conjunction with your policy on pressure area management.

### 4. Indications for Use

Indicated for patients who are at risk of developing pressure ulcers according to your sound clinical judgment.

## 5. Intended Users

Healthcare professionals or caregivers who are at least fifteen years in age, with the ability to read and understand English and Westernized Arabic Numerals. This device should not be operated by patient.

## 6. Contraindications for use

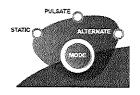
Alternating pressure therapy should not be used for patients with unstable fractures, gross oedema, burns or an intolerance to motion.

## 7. Product Description

The microAIR® MA800 system is a unique and innovative specialized mattress replacement unit. The system utilizes low air loss technology with a high flow rate that provides pressure management for the treatment of pressure ulcers. The advanced 3:1 alternating function also provides active prevention for pressure relief (the cells inflate and deflate in a 3:1 cycle, meaning 2/3 of the body is always supported at any one time). The microAIR® MA800 system

offers "deep-cell therapy"; whereby, the cells completely collapse providing "0" pressure at the point of deflation. The soft-firm adjustment allows the patient to adjust the firmness or softness of the surface for optimal comfort through 10 digital scales. The surface also has 2 inches of enclosed convoluted foam to provide extra protection and comfort for the patient in the event of a power failure and the mattress deflates.

#### 3-1 Alternation Cycle Illustration



| ammmma |
|--------|
|        |
| mmmmm  |
|        |

18 cells,1/3 of cushions are deflated

18 cells, fully inflated

18 cells, 1/3 of cushions
are deflated

18 cells, fully inflated

18 cells, 1/3 of cushions
are deflated

18 cells, fully inflated

## Master Control Unit Features

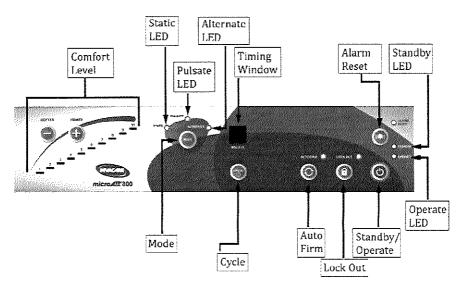
- Alternating time can be adjusted in 3 min increments to 95 min. In addition, the caregiver can select the "Static Function" stopping the alternating function and providing only low air loss therapy.
- Pulsation
- The auto firm function provides uniform firmness for nursing procedures.
- Power failures produce an audio alarm for added safety. The alarm can be disabled by pushing the ALARM RESET Button on the front panel.
- Double insulation provides near silent operation.
- The foot board mounting rack provides convenient placement on the bed.

#### Mattress Features

- Individual air cushion design for maximum pressure distribution.
- Air cells are vented to provide low air loss therapy.
- Each air cushion is vented to provide true low air loss therapy.
- Integrated glide sheet to base cover for easy transferring and reduced patient shearing.
- Invacare Heelsense™ Technology provides further therapy and comfort by decreasing pressure in patients vulnerable heel area.
- Integrated glide sheet to base cover for easy transferring.

## **A**Caution

Alternating pressure should not be applied to pain or pain-sensitive patients. In these cases, we recommend the application of static mode or other suitable foam overlays or other materials which can be found in the Invacare product range.



## 8. Technical Data

## **Master Control Unit**

| Model Name                  | microAIR® MA800                        |  |
|-----------------------------|--|--|
| Model No.                   | MA800P                                 |  |
| Size (inch)                 | 17.7" (L) x 6.8" (W) x 10.8" (H)       |  |
| Weight                      | 12.8 lbs (5.8 kg)                      |  |
| Phase Time                  | 3 ∼ 95 minutes                         |  |
| Max Operating Pressure      | ≧35 mmHg                               |  |
| Rated Voltage               | AC 110-120V                            |  |
| Rated Frequency             | 60 Hz                                  |  |
| Fuse Rating                 | T5AH/250V                              |  |
| Max Current                 | 5A                                     |  |
| Classification              | Class II, Type BF                      |  |
|                             | Not AP or AGP type                     |  |
| Ingress of Water Protection | IP21                                   |  |
| Mode of Operation           | Continuous                             |  |
| Max Flow Rate               | 1275 L/min                             |  |
| Power Cable                 | 15ft, non-shielding, AC powered        |  |
| Environment (Temperature)   | Operation: 15°C to 35°C (59°F to 95°F) |  |
| Environment (Temperature)   | Storage:5°C to 60°C (41°F to 140°F)    |  |
| Environment (Humidity)      | 15% to 90% non-condensing              |  |
| Operation Atmospheric       | 800 hPa to 1060 hPa                    |  |
| Pressure Range              |  |  |
|                             | IEC 60601-1,                           |  |
| Standard                    | CAN/CSA C22.2 No. 60601-1,             |  |
| Standard                    | IEC 60601-1-2                          |  |
|                             | IEC 60601-1-11                         |  |

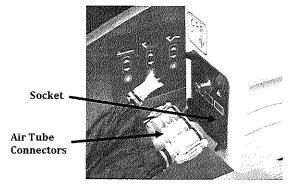
| Mattress Rep  | lacement                                |                 |                 |                 |  |
|---|---|-----------------|-----------------|-----------------|--|
| Model Name  | microAIR® MA800 Air Mattress            |                 |                 |                 |  |
| Model No.   |   | MA800M42        | MA800M4284      | MA800M48        |  |
|   | 36" x 80" x 10"                         | 42" x 80" x 10" | 42" x 84" x 10" | 48" x 80" x 10" |  |
| Weight (Kg)   | 33 lbs (15 kg)                          | 34 lbs (15 kg)  | 34 lbs (15 kg)  | 36 lbs (16 kg)  |  |
| Weight  | 600 lbs                                 | 1000 lbs (454   | 1000 lbs (454   | 1000 lbs (454   |  |
| Capacity  |   | kg) (Static)    | kg) (Static)    | kg) (Static)    |  |
| Cells Material                                      | Nylon w/ PU backing                     |                 |                 |                 |  |
| Cover Type  | Zipper cover with removable foam base   |                 |                 |                 |  |
| Cover   | Nylon woven fabric w/ PU coating finish |                 |                 |                 |  |
| Material  |   |                 |                 |                 |  |
| Base Material Woven Polyester fabric w/ PVC backing |   |                 |                 |                 |  |

Symbols information essential for proper use

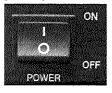
| <b>*</b> | Type BF<br>Protection Against<br>Electronic Shock |          | Class II Equipment                |
|----------|---|----------|-----------------------------------|
| []i      | Consult instructions for use                      | Ā        | Waste Disposal                    |
| Â        | Caution, Consult accompanying documents           | (SGS) is | SGS product certification<br>mark |

## 9. Instructions for Proper Use 🔃

- 1. Remove the existing mattress from the bed frame.
- 2. Replace the standard mattress with mattress system and make sure to orient mattress so that the air tube is placed at the foot of the bed.
- 3. Secure the straps beneath the mattress to the bed frame.
- 4. Hang the Master Control Unit on the foot-board of the bed frame.
- Attach the air tubes connectors to socket on the left panel of the Master Control Unit.



- 6. Ensure the air hoses are not kinked under the mattress. (Could be verified by simple visual check).
- 7. Attach cover to mattress.
- 8. Plug in the control unit and turn on the master power switch on the right side panel. (the STANDBY LED will illuminate.)





9. Push the STANDBY/OPERATE button on the front panel. (OPERATE LED will now be illuminated and the control unit will be in operation.)



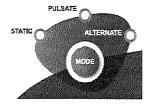
10. Push the AUTO FIRM button for fast inflation. Allow 4-7 min for full inflation. After the mattress is fully inflated, the caregiver can transfer the patient to the mattress. (Note: the mattress can be inflated while a patient is laying on it.)



11. Push AUTO FIRM again to release the fast inflation mode.

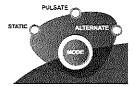


12. Static Function: Push the Mode button to select static mode and adjust the Comfort Control by pressing the SOFT/FIRM button to achieve the maximum patient comfort. On the mode the system provides True Low Air Loss therapy. Perform a hand check by placing hand under the patient buttocks between cells and foam. The patient should have at least 4 cm of clearance between the buttocks and the bottom of the mattress.

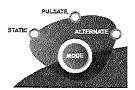




13. Pulsate Function: Push the Mode button to select pulsate mode and activate the pulsate function for additional pressure relief. Once activated, the mattress will automatically inflate for about 1 minute and after that, it will deflate to original setting for one minute and go on for next cycle.



14. Dynamic Function: Push the Mode button to select Alternate mode and enable the 3-1 alternate function.



15. Alternation time can be adjusted by the CYCLE button. The time could be varied from 3 minutes to 95 minutes. (If Static Function is selected, the time window would not show any figures; the time shown on the time window is the mode time and the total cycle time would approximately be the mode time multiplied by 3).



16. The Master Control Unit is equipped with power failure alarm. This function enables the Control unit to generate a horn sound to remind the Medical personnel of power failure. The alarm can be disabled by pushing the Alarm Reset Button on the front panel.



⚠ Caution: Immediate response by the operator is required with power failure alarm.

17. LOCK OUT: The Master Control Unit is also equipped with a manual lockingout function. All function keys will be automatically disabled if the LOCK OUT button has not been activated. When lock-out has been engaged, the "LOCK OUT" button will illuminate.

#### UNLOCKING

Unlocking the control panel is easy. Simply press the "LOCK OUT" button on the control panel for 3-5 seconds.



#### Suggestions

Ensure that there are no kinks in the hoses and the connectors are properly locked.

The parts and/or accessories supplied are specifically designed for use with this control unit. Use other products in conjunction with the system is not recommended.

## **Caution**

Air outlet label 1 is Blower Exhaust, do not touch the blower exhaust during operate as the temperature can be high during operate.

## Comfort Level Setting



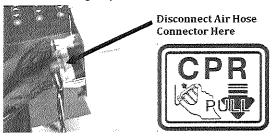
## PATIENT WEIGHT

| LEVEL | STANDARD<br>(LBS) |  |
|-------|-------------------|--|
| 1     | 80                |  |
| 2     | 100               |  |
| 3     | 125               |  |
| 4     | 150               |  |
| 5     | 175               |  |
| 6     | 200               |  |
| 7     | 225               |  |
| 8     | 250               |  |
| 9     | 275               |  |
| 10    | 300               |  |

**Note:** The pressure level settings on the weight chart are only a guideline. The proper adjustment of the pressure level must be applied according to individual patient.

#### CPR Deflation

The air hose connectors can be disconnected from the controller to quick release the air when in an emergency situation where CPR is to be performed.



## 10. Cleaning

#### The Mattress

The mattress should be cleaned on the bed weekly using a damp soft cloth and mild detergent.

If top cover or base cover becomes grossly soiled, put on clean gloves, plastic gown and eye protection before removing top and base covers and disposing according to standard hospital procedures for contaminated waste and replace with clean covers.

Covers can be washed and thermally disinfected in a washing machine by following below procedure: (Never use phenol based cleaning solutions).

| Industrial | Break washes | Cold                                    | 10 minutes |
|------------|--------------|---|------------|
|            | Main washes  | 60°C (140°F)                            | 16 minutes |
|            | Extraction   |   | 2 minutes  |
|            | Cold Rinses  |   |            |
|            | Extraction   |   | 5 minutes  |
| Domestic   | Pre-wash     | Cold                                    | ·          |
|            | Main Wash    | 60°C (140°F)                            | 10 minutes |
|            | Extraction   |   | 2 minutes  |
|            | Cold Rinses  | *************************************** | :          |
|            | Extraction   |   | 5 minutes  |

## Tumble Drying or Tunnel Drying is not recommended.

Mattress Cells can be wiped over with a solution of sodium hypochlorite 1000ppm or any other non-phenolic germicidal solution.

#### The Master Control Unit

## **↑** CAUTION

SWITCH OFF THE ELECTRICAL SUPPLY TO THE PUMP AND DISCONNECT THE POWER CORD FROM THE MAIN SUPPLY BEFORE CLEANING AND INSPECTION

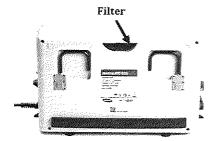
The pump unit should also be cleaned weekly using a damp soft cloth and mild detergent.

The pump casing is manufactured from ABS plastic and if the case is soiled the pump can be wiped down with a sodium hypochlorite solution to dilution of 1000ppm or any EPA- approved hospital grade disinfectant. (Do not use phenol based cleaning solution).

The air filter should also be cleaned and checked as often as possible at a minimum of every six months. Air Filter can be removed by pinching center of the filter and pulling outward from the back of the control unit.

#### Replace Air Filter

- 1. Remove air filter and replace with a new one.
- 2. Use a soft bristle to remove dust and difficult dried-on soil.



#### NOTE:

- 1. Do not use phenol based cleaning solutions.
- 2. Switch off the electrical supply to the pump and disconnect the power cord from the main supply before cleaning and inspection)

#### Waste Disposal



This Product has been supplied from an environmentally aware manufacturer that complies with the WEEE.

This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according the legislation. Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

## 11. Storage and Handling

#### Master Control Unit:

- Check the power cord and plug for abrasions or excessive wear.
- Plug in the unit and verify air flows from the units hose connection ports.
- Place in plastic bag for storage.

#### Mattress:

- Check the air manifold for kinks or breaks. Replace if necessary.
- Twist the CPR plug at the head of the mattress and disconnect the air feed tubes. All the air will now be expelled. Starting at the head end, the mattress can now be rolled. Use the base mounted straps for containment.
- · Place in plastic bag of storage.

It is recommended the following guidelines are used whenever this system is being stored or transported another location:

Temperature limitations:

 $5^{\circ}\text{C} \sim 60^{\circ}\text{C}$ 

Relative Humidity:

15% to 90% non-condensing

## 12. Maintenance & Troubleshooting

No daily maintenance is required. It is intended this equipment should only be serviced by properly qualified, authorized technical personnel. In case of minor trouble please refer to the Troubleshooting table in this section. Contact the provider or Invacare for questions and repair information.

| Symptom   | Inspection Procedure   | Possible Solution   |
|---|--|---|
| Air is pumping out from<br>the control unit but<br>mattress is not inflating. | Is the power source correct? Improper voltage may cause the pump to function abnormally and damage the control unit. | 1. Use power regulator.   |
|   | 2. Is there any kinking tube?  | 2. Adjust the air tubes to enable smooth air flow.  |
|   | 3. Is there any air leakage from the air cells?  | 3. Replace with new air cells   |
|   | 4. Is there any air leakage from air tube between mattress and control unit?   | 4. Replace with new air tubes   |
| 12. A.                                    | 5. Has the air tube connector been connected properly?   | 5. Re-connect the air tubes.  |
| The Control Unit is not functioning.  | Check the power cord and the power voltage.     Check the fuse   | Use a power regulator     Replace with a new fuse   |
| Some of the air cells are not properly inflated.                              | Is the connection between air cells and the manifold kinked?     Is there any air leakage from the air cells?        | Check for any kinking between air cells and manifold.     Replace new air cell if faulty. |

#### 13. EMC Related Notifications

### Manufacturer's declaration-electromagnetic emissions

The <u>microAIR® MA800</u> is intended for use in the electromagnetic environment (for home and professional healthcare) specified below.

The customer or the user of the <u>microAIR® MA800</u> should assure that it is used in such an environment.

| Emission test   | Compliance     | Electromagnetic environment-guidance<br>(for home and professional healthcare<br>environment)  |
|---|----------------|--|
| RF emissions CISPR 11                                       | Group 1        | The microAIR® MA800 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. |
| RF emissions CISPR 11                                       | Class B        | The microAIR® MA800 is suitable for use in all   |
| Harmonic emissions Not applicable IEC 61000-3-2             |                | establishments, including domestic establishments a those directly connected to the public low-voltage   |
| Voltage fluctuations<br>/flicker emissions IEC<br>61000-3-3 | Not applicable | power supply network that supplies buildings used for domestic purposes.   |

## Recommended separation distance between portable and mobile RF communications equipment and the microAIR® MA800

The <u>microAIR® MA800</u> is intended for use in an electromagnetic environment (for home and professional healthcare) in which radiated RF disturbances are controlled. The customer or the user of the <u>microAIR® MA800</u> can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the <u>microAIR® MA800</u> as recommended below, according to the maximum output power of the communications equipment.

| Rated maximum                       | Separation distance according to frequency of transmitter |                               |  |
|-------------------------------------|---|-------------------------------|--|
| output power of<br>transmitter<br>W | 150 kHz to 80 MHz<br>d =1.2√P                             | 80 MHz to 800 MHz<br>d =1,2√P | <b>800</b> MHz to <b>2,7</b> GHz<br>d = 2,3 $\sqrt{P}$ |
| 0,01                                | 0,12  | 0,12                          | 0,23   |
| 0,1                                 | 0,38  | 0.33                          | 0,73   |
| 1                                   | 1,2   | 1,2                           | 2,3  |
| 10                                  | 3,8   | 3,8                           | 7,3  |
| 100                                 | 12  | 12                            | 23   |

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. NOTE1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

## Manufacturer's declaration-electromagnetic immunity

The <u>microAIR® MA800</u> is intended for use in the electromagnetic environment (for home and professional healthcare) specified below.

The customer or the user of the <u>microAIR® MA800</u> should assure that it is used in such an environment.

| Immunity test  | IEC 60601<br>test level   | Compliance level   | Electromagnetic<br>environment-guidance<br>(for home and<br>professional healthcare<br>environment)  |
|--|---|--|--|
| Electrostatic<br>discharge(ESD)<br>IEC 61000-4-2   | Contact:±8 kV<br>Air±2 kV.±4 kV,±8 kV,±15<br>kV   | Contact:±8 kV<br>Air±2 kV,±4 kV;±8 kV.±15<br>kV  | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%   |
| Electrical fast<br>transient/burst<br>IEC 61000-4-4  | ± 2kV for power supply lines<br>± 1kV for input/output lines  | ± 2kV for power supply<br>lines<br>Not applicable  | Mains power quality should<br>be that of a typical home<br>healthcare environment.   |
| Surge<br>IEC 61000-4-5   | ± 0.5kV, ±1kV line(s) to line(s)<br>± 0.5kV, ±1kV,±2kV line(s) to earth   | ± 0.5kV, ±1kV line(s) to line(s). Not applicable   | Mains power quality should<br>be that of a typical home<br>healthcare environment.   |
| Voltage Dips, short<br>interruptions and<br>voltage variations on<br>power supply input<br>lines<br>IEC 61000-4-11 | Voltage dips: 0 % <i>U</i> T; 0.5 cycle 0 % <i>U</i> T; 1 cycle 70 % <i>U</i> T; 25/30 cycles  Voltage interruptions: 0 % <i>U</i> T; 250/300 cycle | Voltage dips:  0 % UT: 0,5 cycle  0 % UT: 1 cycle  70 % UT; 30 cycles  Voltage interruptions:  0 % UT; 300 cycle | Mains power quality should be that of a typical home healthcare environment. If the user of the microAIR® MA800 requires continued operation during power mains interruptions, it is recommended that the microAIR® MA800 be powered from an uninterruptible power supply. |
| Power frequency(50,<br>60 Hz) magnetic field<br>IEC 61000-4-8  | 30 A/m 50 Hz or 60 Hz arns voltage prior to applicati   | 30 A/m<br>60 Hz  | The microAIR® MA800 power frequency magnetic fields should be at levels characteristic of a typical location in a typical home healthcare environment.   |

<sup>\*</sup> During DIP interference, the pump will outage these normal. The cells connected with pump still have air inside which won't affect the use and function of the system.

<sup>\*</sup> During DIP, pump will show abnormal but won't affect essential performance and no need to worry the basic safety.

### Manufacturer's declaration-electromagnetic immunity

The <u>microAIR® MA800</u> is intended for use in the electromagnetic environment (for home and professional healthcare) specified below.

The customer or the user of the <u>microAIR® MA800</u> should assure that it is used in such and environment.

| Immunity test                 | IEC 60601 test level  | Compliance level  | Electromagnetic environment-<br>guidance (for home and professional<br>healthcare environment)   |
|-------------------------------|---|---|--|
| Conducted RF<br>IEC 61000-4-6 | 3 Vrms:<br>0,15 MHz - 80 MHz<br>6 Vrms:<br>in ISM and amateur<br>radio bands between<br>0,15 MHz and 80 MHz<br>80 % AM at 1 kHz | 3 Vrms:<br>0,15 MHz - 80 MHz<br>6 Vrms:<br>in ISM and amateur<br>radio bands between<br>0,15 MHz and 80 MHz<br>80 % AM at 1 kHz | Portable and mobile RF communications equipment should be used no closer to any part of the microAIR® MA800 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  |
| Radiated RF<br>IEC 61000-4-3  | 10 V/m<br>80 MHz 2,7 GHz<br>80 % AM at 1 kHz  | 10 V/m<br>80 MHz 2,7 GHz<br>80 % AM at 1 kHz  | Recommended separation distance: $d = 1,2 \ \forall P$ $d = 1,2 \ \forall P$ 80MHz to 800 MHz $d = 2,3 \ \forall P$ 800MHz to 2.7 GHz  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).  Interference may occur in the vicinity of equipment marked with the following symbol: $((+))$ |

NOTE1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

# Manufacturer's declaration-electromagnetic immunity Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment

The microAIR® MA800 is intended for use in the electromagnetic environment (for home and professional healthcare) specified below.

The customer or the user of the microAIR® MA800 should assure that it is used in such an environment.

| Test<br>frequency<br>(MHz) | Band <sup>a)</sup><br>(MHz) | Service <sup>a)</sup>  | Modulation b)                              | Maximum<br>power<br>(W) | Distanc<br>e<br>(m) | IMMUNITY<br>TEST LEVEL<br>(V/m) | Compliance<br>LEVEL<br>(V/m)<br>(for home and<br>professional<br>healthcare) |
|----------------------------|-----------------------------|--|--|-------------------------|---------------------|---------------------------------|--|
| 385                        | 380 -390                    | TETRA 400  | Pulse<br>modulation b)<br>18 Hz            | 1,8                     | 0,3                 | 27                              | 27   |
| 450                        | 430 - 470                   | GMRS 460.<br>FRS 460   | FM c)<br>±5 kHz<br>deviation<br>1 kHz sine | 2                       | 0,3                 | 28                              | 28   |
| 710                        | 704 - 787                   | LTE Band 13,<br>17   | Pulse<br>modulation b)<br>217 Hz           | 0,2                     | 0,3                 | 9                               | 9  |
| 745                        |                             |  |  |                         |                     |                                 |  |
| 780                        |                             |  |  |                         |                     |                                 |  |
| 810                        | 800 <b>-</b> 960            | GSM 800/900,<br>TETRA 800,<br>IDEN 820.<br>CDMA 850.<br>LTE Band 5             | Pulse<br>modulation b)<br>18 Hz            | 2                       | 8,0                 | 28                              | 28   |
| 870                        |                             |  |  |                         |                     |                                 |  |
| 930                        |                             |  |  |                         |                     |                                 |  |
| 1 720                      | 1 700 -<br>1 990            | GSM 1600:<br>CDMA 1900;<br>GSM 1900:<br>DECT;<br>LTE Band 1, 3,<br>4, 25; UMTS | Pulse<br>modulation b)<br>217 Hz           | 2                       | 8,0                 | 28                              | 28   |
| 1 345                      |                             |  |  |                         |                     |                                 |  |
| 1 970                      |                             |  |  |                         |                     |                                 |  |
| 2 450                      | 2 400 -<br>2 570            | Bluetooth.<br>WLAN,<br>802 11 b/g/n,<br>RFID 2450.<br>LTE Band 7               | Pulse<br>modulation b)<br>217 Hz           | 2                       | 0.3                 | 28                              | 28   |
| 5 240                      | 5 100 -<br>5 800            | WLAN 802.11<br>a/n   | Pulse<br>modulation b)<br>217 Hz           | 0,2                     | 0.3                 | g,                              | . 9  |
| 5 500                      |                             |  |  |                         |                     |                                 |  |
| 5 785                      |                             |  |  |                         |                     |                                 |  |

NOTE If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.

ACAUTION: If abnormal behavior is observed due to EM disturbances, please relocate the device accordingly.

⚠ CAUTION: Please do not use any other cables or accessories not approved by the manufacturer in this manual to avoid negative influence on electromagnetic compatibility.

a) For some services, only the uplink frequencies are included.

b) The carrier shall be modulated using a 50 % duty cycle square wave signal.

c) As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

## 14. Expected Service Life

- For maintain basic safety and essential performance in regards to EMC, the microAIR® MA800 has an expected service life of two years. To maintain the condition of the alternating mattress system, service the system regularly according to the schedule recommended by INVACARE.
- Medical electrical equipment needs special precautions regarding EMC. Shall
  the device be used within one mile distance from AM, FM, or TV broadcast
  antennas, it needs to be installed according to the EMC information provided.
- Do NOT use unapproved accessories or attempt to modify, disassemble or otherwise misuse the microAIR® MA800 Alternating Pressure Low Air Loss Mattress System or any of its components.

## 15. Limited Warranty

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser who purchases this product when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

Invacare warrants the mattress and cover when purchased new and unused to be free from defects in materials and workmanship for a period of one year from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants the electronics of the control unit when purchased new and unused to be free from defects in materials and workmanship for a period of one year from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. The internal pump, blower and compressor are warranted for a year from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address on the back cover. Provide dealer's name, address, model number, and the date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number.

Invacare will issue a return authorization. The defective unit or parts must be returned for warranty inspection using the serial number, when applicable, as identification within thirty days of return authorization date. DO NOT return products to our factory without our prior consent. C.O.D. shipments will be refused; please prepay shipping charges.

LIMITATIONS AND EXCLUSIONS: THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THE ENCLOSED INSTRUCTIONS. IN ADDITION, THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED; PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE: OR PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO: MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS: PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE; PRODUCTS DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL; PRODUCTS REPAIRED BY ANYONE OTHER THAN AN INVACARE DEALER, SUCH EVALUATION SHALL BE SOLELY DETERMINED BY INVACARE.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN.

THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

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