

APOLLO AURA TURN AIR MATTRESS SYSTEM USER MANUAL



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IMPORTANT SAFEGUARDS
READ ALL INSTRUCTIONS BEFORE OPERATING THIS DEVICE



DANGER – To reduce the risk of electrocution

1. Always unplug this product immediately while it is not in use.
2. Do not use while bathing.
3. Do not place or store product where it can fall or be pulled into a tub or sink.
4. Do not place in or drop into water or other liquid.
5. Do not reach for a product that has fallen into water. Unplug immediately.



WARNING – To reduce the risk of burns, electrocution, fire or injury to persons

1. This product should never be left unattended when plugged in.
2. Close supervision is necessary when this product is used by, on, or near children or invalids.
3. Use this product only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer.
4. Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the product to a service center or to the distributor for examination and repair.
5. Keep the cord away from heated surfaces.
6. Never block the air openings of this product or place it on a soft surface, such as a bed or couch, where their openings may be blocked. Keep the air opening free of lint, hair, and other similar particles.
7. Never drop or insert an object into any opening or hose.
8. Connect this product to a properly grounded outlet only. See Grounding Instruction.











NOTE, CAUTION AND WARNING STATEMENTS:

NOTE – Indicate some tips

CAUTION – Indicate correct operating or maintenance procedures in order to prevent damage to or destruction of the equipment or other property

WARNING – Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury.



SYMBOLS	DESCRIPTION
I	POWER ON
O	POWER OFF
	CAUTION
	"BF" SYMBOL, INDICATES THIS PRODUCT IS ACCORDING TO THE DEGREE OF PROTECTION AGAINST ELECTRIC SHOCK FOR TYPE BF EQUIPMENT
	FUSE SPECIFICATION
	<p>WASTE DISPOSAL</p> <p>This Product has been supplied by an environmentally conscious manufacturer that complies with the WEEE.</p> <p>This product may contain substances that could be harmful to the environment if disposed of in places that are not approved by your state, local or federal laws. Please be environmentally responsible and recycle this product through your recycling facility at its end of life.</p>
	CE CERTIFICATION LOGO
	MANUFACTURER
	KEEP DRY
	CONSULT INSTRUCTIONS FOR USE

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1. INTRODUCTION

This manual should be used for initial set up of the Apollo Aura Turn Air Mattress System and for daily maintenance.

2. INTENDED USE

This product is intended to help and reduce the incidence of pressure ulcers while optimizing patient comfort. It also provides the following purposes:

- Individual home care setting and long-term care of whom is suffering from a pressure ulcer.
- Pain management as prescribed by physician.



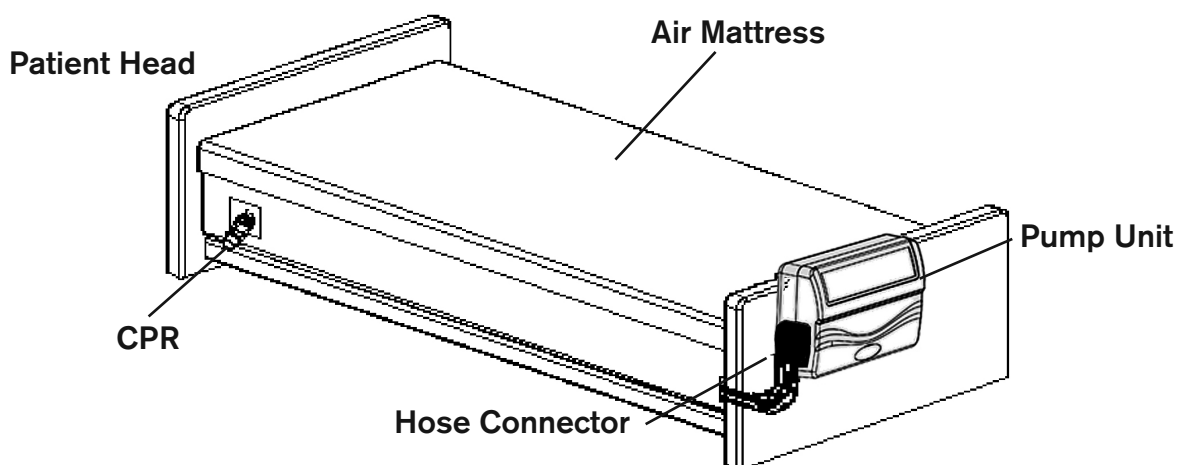
NOTE: Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

3. PRODUCT DESCRIPTION

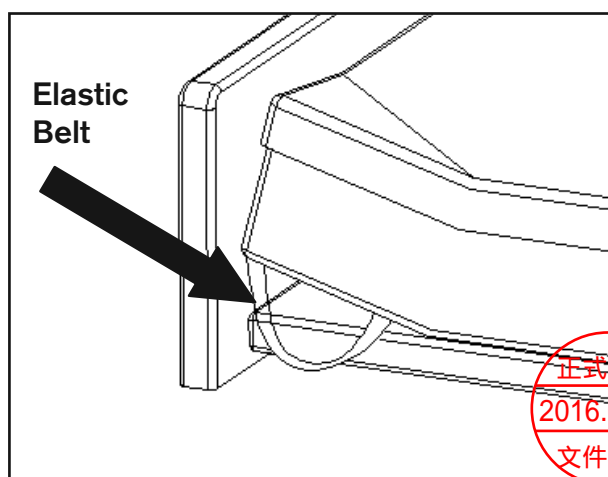
- (1) Air Mattress
- (2) Pump Unit
- (3) User Manual

4. PRODUCT INSTALLATION GUIDE

1. Unpack the box and inspect for any damage, which may have occurred during shipment. If there are any damages, please contact your dealer immediately.
2. Place the mattress on top of the bed frame. Please note for the foot end.

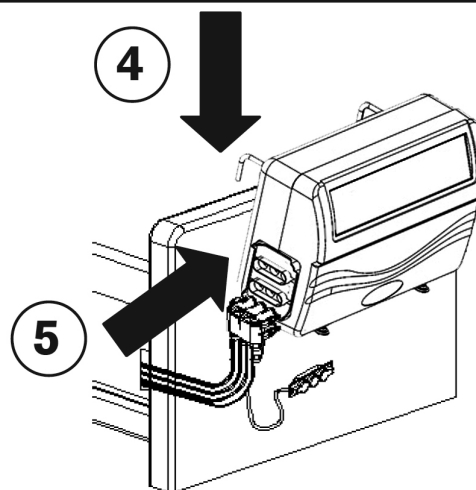


3. Fix the mattress onto the mattress platform



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4. Hang the pump onto bed rail (food-end), the hangers will hold the bed rail tight automatically
5. Unplug the cover of the hose connector and connect the hose connector to the pump unit



6. Plug the power cord into electrical outlet



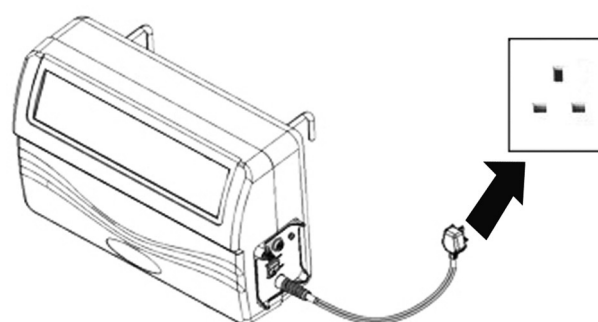
NOTE1: Make sure the pump unit is suitable for the local power voltage



NOTE2: The plug is also served to disconnect the device



CAUTION: The pump can only be applied to the mattress recommended by the manufacturer. Do not use it for any other purpose (applied part: air mattress)

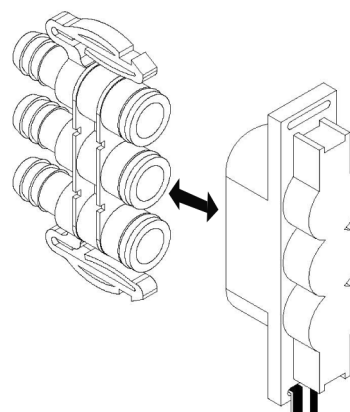


7. Make sure the CPR is at the CLOSE position before turning on the power. Switch the CPR to OPEN position to release the air at emergency or for packaging

CPR Position Indicator

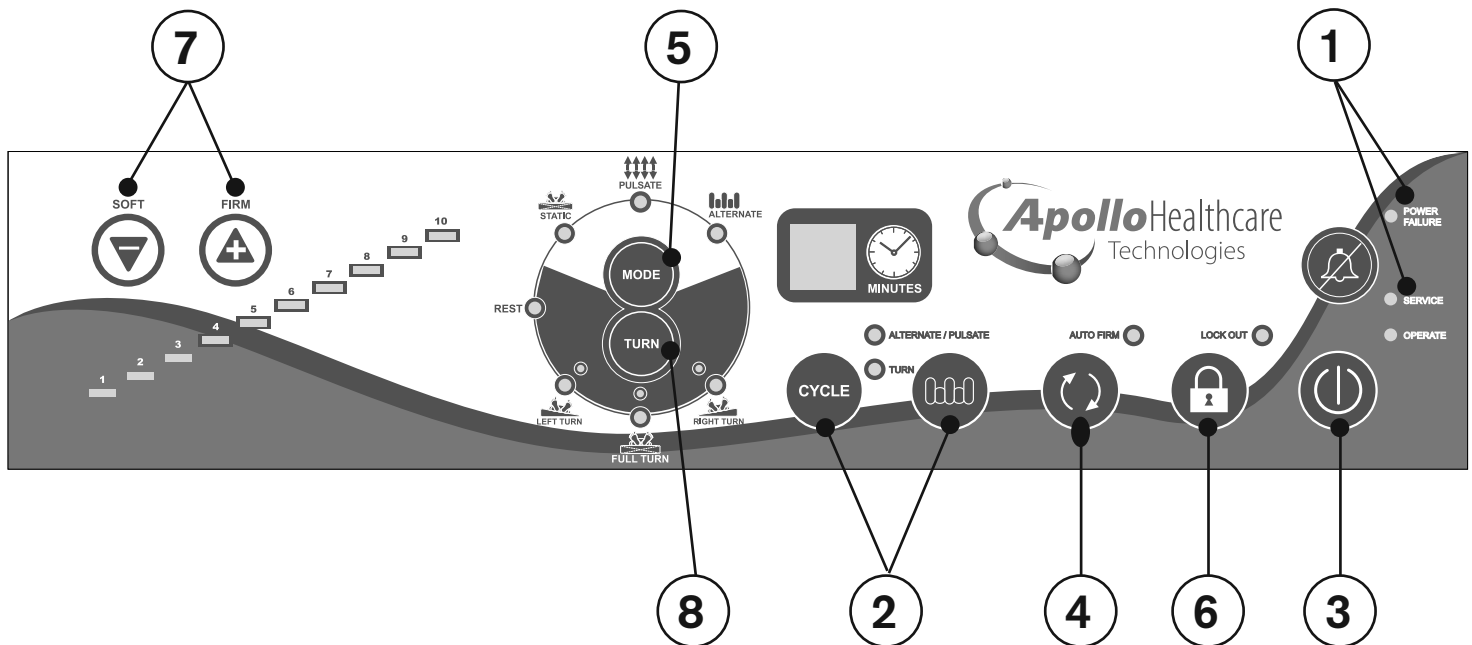


8. Put on the hose connector cover at transportation (for the models without ventilate air)



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5. PANEL DISPLAY AND THE OPERATION GUIDE



5.1 PANEL DISPLAY

1. Alarm Mute and Indicator
 - Power Failure Alarm Indicator
 - Service Error Alarm Indicator
2. Alternate/Pulsate/Turn Cycle Time Selection and The Time Display
3. Operating
4. Auto-Firm
5. Function Mode Selection (Alternate, Pulsate & Static)
6. Panel Lock-out
7. Comfort Control
8. Turning Function

5.1.1 ALARM MUTE





- Power Failure Alarm

At power failure, the Power Failure LED light will come on with buzzer, the alarm shall resume to notify the patient/caregiver. Pressing the MUTE button will disable both buzzer/LED and turn off the pump.

- Service (Alternating Failure Alarm Indicator)

The error code is to be defined per model difference.

5.1.2 Alternate/Pulsate/Turn Cycle Time Selection and The Time Display

To set new cycle time for Alternation and Turn. Press ALTERNATE/TURN  to switch to desired mode first and then set the cycle time by pressing "CYCLE" .

- Alternating Cycle Time can be selected from 5~95mins at 5mins interval by pressing the CYCLE button.
- Pulsate Cycle Time can be selected from 1~20mins at 1min interval by pressing the CYCLE button.
- Turning Cycle Time can be selected from 5~95mins at 5mins interval & Hd(Hold on left/right turn position) by pressing the CYCLE button.

5.1.3 Operate



Press this button to turn on/off the unit.

NOTE: The power switch on the side of pump must be turned on

5.1.4 Auto-Firm



This mode will be forced to execute every time the power is turned on. This ensures the pump is able to reach its maximum operating pressure. Once the maximum pressure level is reached, the pump will automatically switch into the previous selected mode and comfort level. User can also use this function as full mattress inflation during patient ingress/egress for better support. There is a 30 minutes auto-recovery mode to return back to the previous selected comfort level.



5.1.5 Function Mode Switch

MODE

ALTERNATE - for the mattress to operate at alternating mode which 50% of the air cell of the mattress will be deflated to reduce the surface pressure. The alternating cycle will continue at the selected cycle time until another mode is selected.

PULSATE - This mode will trigger the mattress to go into the STATIC mode, the pressure in each cycle will be reduced 30% to lower down the surface pressure. The Pulsate will continue until another mode is selected.

STATIC - This mode will keep the mattress at selected pressure.

5.1.6 Panel Lock-Out



Should the panel remain untouched for 1 minute or press the Lock-out button, the lock-out feature will lock the screen to prevent accidental changing of the setting without notice. To unlock, press the Lock-out button for 3 seconds.

5.1.7 Comfort Level



Comfort level controls the air pressure output. When pressing the FIRM button, the output pressure will increase and higher pressure output will support the heavier weight user. Vice versa, for decreasing air pressure. Check to see if the suitable pressure is selected by sliding one hand between the air cells and the patient to feel patient's buttocks. Users should be able to feel the minimum contact. Always leave at least 1 inch space between user's buttock areas and air cells under to prevent bottoming out.

5.1.8 Turning Function

TURN

1. Press "TURN" to select for LEFT/RIGHT/FULL TURN Functions to enable the rotation therapy.



Note: without setting the cycle time, the mattress will default to HOLD position at a rotation angle where "Hd" is displayed in the Time Window.

2. Press "CYCLE" to set desire cycle time from 5 minutes increments to 95 minutes & Hd (Hold on left/right turn position). Selected cycle time will be displayed in Time display window on the control panel.
3. Different modes (Alternating/Pulsate /Turn) of cycle time can be checked by engaging the Time Viewer button



5.2 OPERATION GUIDE

5.2.1 GENERAL OPERATION

- Switch on the main power switch found at the side of the pump and press .
- Push on the OPERATE button , the system defaults to "AUTO-FIRM" mode to inflate the mattress in around 2-3 minutes. The system allows caregiver to adjust therapy function during the initial inflation.
- Following the weight and height of the patient, adjust the pressure setting to the most suitable level without bottoming out.

5.2.2 CPR

When CPR needs to be performed, quickly rotate the CPR valve to "OPEN" position, at the same time, disconnect the hose connector from the PUMP to speed up the air release.



5.2.3 PRESSURE SET UP

User can adjust pressure of air mattress to a desired softness by adjusting the Comfort Level.

5.2.4 AUDIBLE/VISIBLE ALARM and VISIBLE INDICATOR

(1) Power Failure – When electrical shortage occurred or power cord is unplugged without turning off the pump, the “POWER FAILURE” indicator will light up along with buzzer. Check to ensure power cord is connected properly.



NOTE: When the PUMP has not been used for more than 3 months, it might need 60 minutes operating time or more for the Alarm to function properly.

(2) Service Error Alarm – When fault conditions occur, the “SERVICE” indicator will light up along with buzzer. Reference conditions for error code and call the agent or distributor for service:

1. Alternate/Static of Air Valve Positioning error(E1)
2. Turning of Air Valve Positioning error(E2)
3. Alternate/Static/Turning of Air Valve Positioning error(E3)

Pressing the MUTE button will disable buzzer. Should the situation not be resolved within 20 minutes and the fault conditions continue, the alarm shall resume to notify the patient/caregiver.

5.2.5 ALARM MUTE

When alarms were triggered, both the LED light and buzzer will sound off to warn the patient/caregiver.

By pressing the button, it will temporarily mute the buzzer so the caregiver may check for possible causes.

Should the situation not be resolved and the fault conditions continue, the alarm will resume. When in Power Failure situation, pressing alarm mute will cease the buzzer/LED indicator and Operation functions.

6. CLEANING

The Mattress Replacement

The mattress should be cleaned on the bed weekly using a damp soft cloth and mild detergent. If top sheet (Top cover) or base (Bottom cover) becomes grossly soiled, put on clean gloves, plastic gown and eye protection before removing top sheet or base and disposing according to standard hospital procedures for contaminated waste. Replace with clean covers. **Covers** can be washed and thermally disinfected in a washing machine following below procedure: **(Never use phenol based cleaning solutions)**

Industrial	Break Washes	Cold	10 minutes
	Main Washes	60°C(140°F)	6 minutes
	Main Washes	70°C(158°F)	10 minutes
	Extraction		2 minutes
	3 Cold Rinses		
Domestic	Extraction		5 minutes
	Pre-Wash	Cold	
	Main Wash	70°C(158°F)	10 minutes
	Extraction		2 minutes
	Cold Rinses		
	Extraction		5 minutes

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

The Pump: The casing of the pump is manufactured from ABS plastic. If soiled it can be wiped down with a sodium hypochlorite solution to dilution of 1000ppm or any EPA approved, hospital grade. 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 Therapy control unit.



7. STORAGE

- (1) To quickly vacuum air out from mattress for storage, rotate the CPR valve to OPEN position and disconnect the hose connector to release the air.
- (2) Lay the mattress out flat and upside down.
- (3) Roll from the head end towards the foot end.
- (4) Foot-end strap can then be stretched around the rolled mattress to prevent unrolling.
- (5) The power cord could be wrapped around the pump bumper or disconnected for storage.



CAUTION: Do not fold, crease or stack the mattresses.

8. MAINTENANCE

8.1 GENERAL

- (1) Check main power cord and plug if there are abrasions or excessive wears.
- (2) Check mattress cover for signs of wear or damage. Ensure mattress cover and tubes are stubbed together correctly.
- (3) Check the air hoses for any kink or break. For replacement, please contact your local dealers.

8.2 FUSE REPLACEMENT

- (1) Disconnect the plug from mains power when a blown fuse is suspected.
- (2) Remove the cover of the fuse holder by means of a small screwdriver.
- (3) Insert a new fuse of the correct rating, and replace the cover of the fuse holder. The fuse should be rated as T5AH/250V.

8.3 AIR FILTER REPLACEMENT

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

9. TROUBLESHOOTING


PROBLEM	SOLUTION
Power is not ON	<ul style="list-style-type: none">• Check if the plug is connected to mains• Check if there is any blown fuse
Alarm is on (Audible & Visual)	<ul style="list-style-type: none">• Check if the power was suddenly shut down
Patient is bottoming out (without alarm triggered)	Pressure setting might be inadequate for the patient, adjust comfort level to FIRM and wait for a few minutes for better comfort

If the above information does not solve the problem, please contact your local agent for further support.



10. TECHNICAL DATA

10.1. Product Specification

PUMP UNIT		AIR MATTRESS	
MODEL	Apollo Aura Turn Blower	MODEL	Apollo Aura Turn Mattress
DIMENSION(cm)	45 (W) x 17.3 (D) x 27.5 (H)	DIMENSION(cm)	91.5 (W) x 203 (L) x 21 (H)
WEIGHT (kg)	7kg	WEIGHT (kg)	20kg
CYCLE TIME	5~95 mins	CELL MATERIAL	TPU 0.35mm
PUMP OUTPUT PRESSURE RANGE (mmHg)	10 to 35 (± 5)	NO. OF AIR CELL	19 CELLS
POWER VOLTAGE	AC 220-240 V	COVER MATERIAL	2 Way Stretched Nylon with PU Coated
CURRENT	5A	BOTTOM MATERIAL	PVC Coated Polyester
FUSE RATING	T5AH 250V	WEIGHT LIMIT	150kg
FREQUENCY	50 Hz	MAX PRESSURE	103.5mmHg
CLASSIFICATION	Class I		
	Type BF 		
WARRANTY	2 Years	WARRANTY	1 Year
OPERATION TEMPERATURE		15°C~ 35°C	
OPERATION HUMIDITY		30%~75%	
MODE OF OPERATION		Continuous	
CONFORMSS OF STANDARD		IEC/EN 60601-1, IEC 60601-1-2	

10.2 EMC INFORMATION

Guidance and manufacturer's declaration –electromagnetic emissions		
The Apollo Aura Turn Air Mattress System is intended for use in the electromagnetic environment specified below. The customer or the user of the Apollo Aura Turn Air Mattress System should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The Apollo Aura Turn Air Mattress 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.
RF emissions CISPR 11	Class B	The Apollo Aura Turn Air Mattress 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.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	



Recommended separation distances between portable and mobile RF communications equipment and the Apollo Aura Turn Air Mattress System

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

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1,2 \sqrt{P}$	80 MHz to 800 MHz $d = 1,2 \sqrt{P}$	800 MHz to 2,5 GHz $d = 2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	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 metres (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.

Guidance and manufacturer's declaration – electromagnetic immunity

The Apollo Aura Turn Air Mattress System is intended for use in the electromagnetic environment specified below. The customer or the user of the Apollo Aura Turn Air Mattress System should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Apollo Aura Turn Air Mattress System, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p style="text-align: center;">Recommended separation distance $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800 MHz to 2,5 GHz</p> <p>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 metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,</p> <p>a. Should be less than the compliance level in each frequency range. b. Interference may occur in the vicinity of equipment marked with the following symbol: </p>
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	

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 Apollo Aura Turn Air Mattress System is used exceeds the applicable RF compliance level above, the Apollo Aura Turn Air Mattress System should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Apollo Aura Turn Air Mattress System.
- b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Guidance and manufacturer's declaration – electromagnetic immunity			
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Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	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 transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 sec	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Apollo Aura Turn Air Mattress System requires continued operation during power mains interruptions, it is recommended that the Apollo Aura Turn Air Mattress System be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a.c. mains voltage prior to application of the test level.			

11. Warranty

Apollo Healthcare Technologies Ltd. guarantees that this equipment is free from defects in materials and workmanship. Our obligation under this warranty is limited to the repair of equipment returned to the place of purchase within 12 months of delivery date.

We agree to service / adjust any equipment returned, and to replace or repair any part that is proven to be a warranty defect, at no charge.

This warranty excludes equipment damage through shipping, tampering, improper maintenance, carelessness, accident, negligence or misuse, or products that have been altered, repaired or dismantled other than with the manufacturer's written authorisation and by its approved procedures and by properly qualified technicians.

In no event shall Apollo Healthcare Technologies Ltd. be liable for any direct, indirect or consequential damages or losses resulting from the use of equipment.







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