

Invacare® Octave™



en **Bed**
User Manual



This manual MUST be given to the user of the product.
BEFORE using this product, read this manual and save for future
reference.



Yes, you can.®

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This bed has been tested and approved according to IEC 60601-2-52.

This bed has undergone a risk analysis according to EN ISO 14971.

Invacare is certified according to ISO 9001 and ISO 13485.

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I General

I.1 Introduction

This user manual contains important information about the handling of the product. In order to ensure safety when using the product, read the user manual carefully and follow the safety instructions.

To ensure correct use, the bed must be tested and adjusted by qualified personnel.

All references to left and right are based on a person lying on his back in the bed, with his head in the head end.

If a problem should arise in connection with the delivered product, please contact your *Invacare*® dealer. An address list is shown on the back side at this manual.

I.1.1 Symbols in this manual

In this manual, warnings are indicated by symbols. The warning symbols are accompanied by a heading that indicates the severity of the danger.



WARNING

Indicates a hazardous situation that could result in serious injury or death if it is not avoided.



CAUTION

Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.



IMPORTANT

Indicates a hazardous situation that could result in damage to property if it is not avoided.



Tips and Recommendations

Gives useful tips, recommendations and information for efficient, trouble-free use.



This product complies with Directive 93/42/EEC concerning medical devices. The launch date of this product is stated in the CE declaration of conformity.



Manufacturer of the product.

I.2 Intended Use

The bed has been developed for domestic care and long term care:

- *Application environment 3*; Long-term care in a medical area where medical supervision is required and monitoring is provided if necessary and medical electrical equipment used in medical procedures may be provided to help maintain or improve the condition of the patient.
- *Application environment 4*; Care provided in a domestic area where medical electrical equipment is used to alleviate or compensate for an injury, disability or disease.
- The bed is intended for indoor use only.

- The bed is intended for adult users, having a physical size equal to or more than 146 cm, a weight equal to or more than 40 kg and a body mass index (BMI) equal to or more than 17.
- The bed is not intended for transportation of users. It is mobile within a room with a patient in it. Castors are lockable.
- The bed is not intended for psychiatric patients.
- Maximum user weight and safe working load are listed on the product label and in the technical data section in this manual.



WARNING!

Any other or incorrect use could lead to hazardous situations.

Invacare accepts no liability for any use, change or assembly of the product, other than stated in this user manual.

I.3 Service life

The expected service life of this product is seven years when used daily and in accordance with the safety instructions, maintenance intervals and correct use, stated in this manual. The effective service life can vary according to frequency and intensity of use.

I.4 Warranty

The warranty covers all material and production defects for two years from the date of delivery, provided it can be demonstrated that such defects were present before delivery. All manufacturing faults or defects must be promptly reported.

Invacare® may repair the fault or replace the component. The warranty provided by *Invacare*® does not cover additional costs (transport, packaging, labour, sundry expenses, etc. are for the customer's account).

The warranty does not cover:

- Damage caused during transport that is not directly reported to the forwarder at the moment of delivery.
- Repairs performed by unauthorized centers and personnel.
- Parts subject to normal wear.
- Malicious damages or damaged caused by improper use of the bed.

Invacare® reserves the right to alter product specifications without prior notice.

I.5 Limitation of liability

Invacare accepts no liability for damage arising from:

- Non-compliance with the User Manual
- Incorrect use
- Natural wear and tear
- Incorrect assembly or set-up by the purchaser or a third party
- Technical modifications
- Unauthorized modifications and/or use of unsuitable spare parts

A written authorization of *Invacare* must be obtained before installing additional adaptations on this *Invacare* product. Otherwise no liability claims can be made.

2 Safety

2.1 General safety information



WARNING!

Risk of entrapment / suffocation

- There's a risk of entrapment / suffocation between mattress support, side rail and bed end or between moving parts and objects placed nearby the bed.
- The bed must not be used by persons under 12 years of age, or by persons with a body size equivalent to an average 12 years old or smaller.
 - The bed, in combination with side rails must not be used by persons having a physical size less than 146 cm, a weight less than 40 kg or a body mass index (BMI) less than 17.
 - Due to mattress compression, an increased risk may occur over time. Periodically monitor gaps between the bed, mattress and/or side rail. Replace mattress if the gaps may lead to entrapment.



WARNING!

Risk of slipping through the openings

- The bed fulfils all requirements regarding maximum distances. However, it is possible that persons with small body dimensions slip through the openings between the side rails or through the opening between the side rail and the mattress support.
- Pay special attention, if the bed is used for the care of persons with small body dimensions.



WARNING!

Risk due to electromagnetic interference

- Electromagnetic interference between the bed and other electrical products can occur.
- To reduce or eliminate such electromagnetic interference, increase the distance between the bed and the products or switch them off.

This medical bed can be used together with medical electrical equipment connected to the heart (intracardially) or blood vessels (intravascularly) provided that following points are respected:

- The bed should be equipped with means for potential equalization connection marked out by a symbol shown in the back of this manual.
- Medical electrical equipment should not be fixed on the bed's metallic accessories such as side rails, lifting pole, drip rod, bed ends, etc.
- The medical electrical equipment power supply cord should be kept clear of the accessories or any other moving parts of the bed.



WARNING!

Risk of injury or damage to property

- Do not roll the castors over the main power cord.
- Do not bring main power cord into moving parts.
- Disconnect the plug from the mains before moving the bed.
- Make sure that no wires (mains or from other equipment) are jammed or damaged, when the bed is used.
- Keep bed components and accessories at least 30 cm away from a heated surface and not in direct sunlight.



CAUTION!

- There is a risk of entrapment of fingers in the bed moving parts.
- Pay attention to your fingers.



CAUTION!

- For a user entering or exiting the bed, always lower the bed to an appropriate height. The backrest can be used as a support. Make sure, the thigh- and leg section is horizontal to avoid overloading the mattress support.
- Always lower the bed to the lowest position before leaving the patient in the bed unattended.
- Make sure that there is nothing under, over, or near the bed that can obstruct the height adjustment, like for example furniture, lifts or window frames.

2.2 Mattresses



WARNING!

Safety aspects regarding combination of side rails and mattresses:

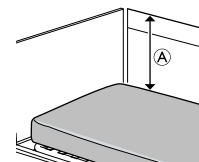
- To get the highest possible safety level, when using side rails on the bed, the minimum and maximum measures for mattresses, must be respected.
- For correct mattress measures see mattress table in chapter 7 *Technical data*, page 13.



WARNING!

Risk of entrapment and/or suffocation

- The user could get trapped and/or suffocate, if the horizontal space, between the mattress side and the inside of the side rail, is too big. Follow the minimum width (and length) of mattresses in combination with a side rail, as stated in the mattress table in chapter 7 *Technical data*, page 13.
- Be aware that using very thick or soft mattresses (low density), or a combination of these, increases the risk.



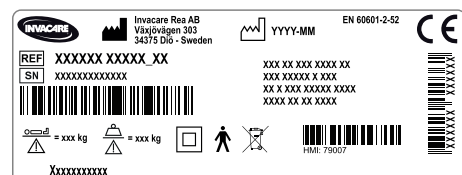
WARNING!

Risk of falling

- The user can fall over the edge and get seriously injured, if the vertical distance \textcircled{A} between the top of the mattress and the edge of the side rail/bed end, is too short. See image above.
- Always keep a minimum distance \textcircled{A} of 22 cm.
 - Follow the maximum mattress height in combination with the side rail as stated in the mattress table in chapter 7 *Technical data*, page 13.









2.3 Labels and symbols on the product



2.3.1 Product label



The product label is placed on the frame of the bed and contains the main product information, including technical data.

Symbols

	Serial Number
	Reference Number
	Manufacturer Address
	Manufacturing Date
	Max. User Weight
	Max. Safe Working Load
	CLASS II equipment
	Type B Applied Part



	WEEE conform
	This product complies with Directive 93/42/EEC concerning medical devices.

Abbreviations for technical data:

- I_{in} = Incoming Current
- U_{in} = Incoming Voltage
- Int. = Intermittence
- AC = Alternating Current
- Max = maximum
- min = minutes

For more information about technical data, refer to 7 Technical data, page 13.

2.3.2 Other labels and symbols

	Refer to User Manual
	Definition of min. weight, min. height and min. body mass index of an adult user Refer to user documentation for the correct mattress measures.

3 Operating the bed

3.1 General Safety Information



WARNING!

Risk of personal injury and damage to property.

- The bed must be placed so that the height adjustment is not obstructed by, for example, lifts or furniture.
- Take care that no body parts are being squeezed between fixed parts (such as side rails, bed ends etc) and moving parts.
- The hand control must not be used by children.



WARNING!

Risk of injury

If the bed is used by confused or restless users or users with spasms:

- either, when the bed is equipped with a lockable hand control, lock the hand control functions,
- or make sure that the hand control is out of reach for the user.

3.2 Setup



IMPORTANT!

- Unpacking and setup of the bed must be performed by a specialized dealer or technician as described in the service manual.

- Accessories, delivered with the bed, must be assembled by a specialized dealer or technician as described in the service manual or in the documentation, delivered with the accessory.

Scope of delivery

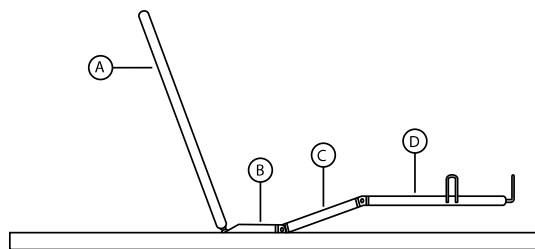
- Complete bed with castors, control box and mattress support

Accessories, like bed ends, side rails, lifting pole etc. are delivered apart.

Before taking the bed into use

1. Move the bed to its correct position.
2. Connect the bed to the mains.

3.3 Main parts of bed



(A)	Backrest
(B)	Seat section
(C)	Thigh section
(D)	Leg section

3.4 Hand control HB85 / HL85

Hand control HB85 / HL85 is equipped with five buttons to operate the electrical functions of the bed. The buttons on hand control HL85 can be locked.

Sitting position



1. Up: press left side of the button (▲).
2. Down: press right side of the button (▼).

Backrest section



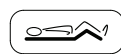
1. Up: press left side of the button (▲).
2. Down: press right side of the button (▼).

Leg section



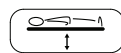
1. Up: press left side of the button (▲).
2. Down: press right side of the button (▼).

Thigh section



1. Up: press left side of the button (▲).
2. Down: press right side of the button (▼).

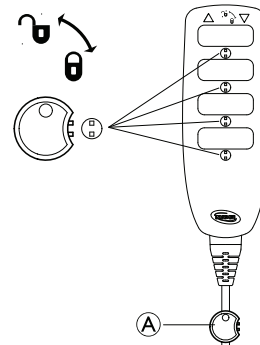
Height adjustment



1. Up: press left side of the button (▲).
2. Down: press right side of the button (▼).

3.4.1 Locking function

The locking function (optional) prevents usage of certain function buttons. Regardless of how many buttons your hand control has, they can all be locked individually.



1. Lock: Insert key (A) in the key hole, below the wanted function and turn it clockwise.
2. Unlock: Insert key (A) in the key hole, below the wanted function and turn it anti clockwise.

3.5 Operating side rails



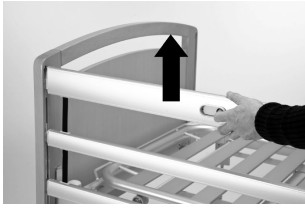
WARNING!

Risk of entrapment or suffocation

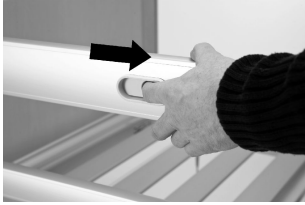
There's a risk of entrapment or suffocation between mattress support, side rail and bed end.

- Always ensure correct fitting of the side rails.

3.5.1 Britt V and Line side rails



Lock / Upper position
 Pull up the top wooden side rail bar, until the locking pin locks with an audible click



Release
 Lift the top wooden side rail bar and press the two locking rings together.



Down / Lower position
 Lower the side rail.

3.5.2 Using a side rail height extender

Line and Britt V side rails can be supplemented by a height extender. A side rail height extender increases the allowed mattress thickness by 15 cm.

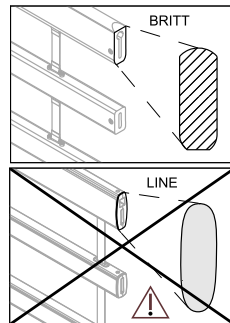
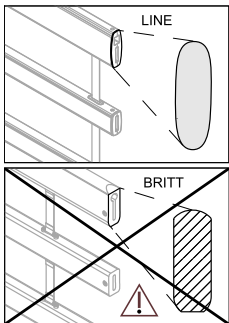
WARNING!
Risk of injury or death

A misapplied side rail height extender could fall off. There's an increased risk for the user to fall out of the bed.

- Make sure that the side rail height extender is properly attached to the side rail. Refer to the user manual of the side rail height extender.
- Make sure to use the correct height extender for your side rail (the shape must match to the shape of the side rail. A label on the height extender determines to which side rail it belongs. See image below.

Height extender for LINE side rail:

Height extender for BRITT V side rail:



3.6 Castors and brakes

CAUTION!
Risk of trapping/squeezing

All brakes are foot-operated.
 – Do not release the brake with the fingers.

CAUTION!
Risk of injury

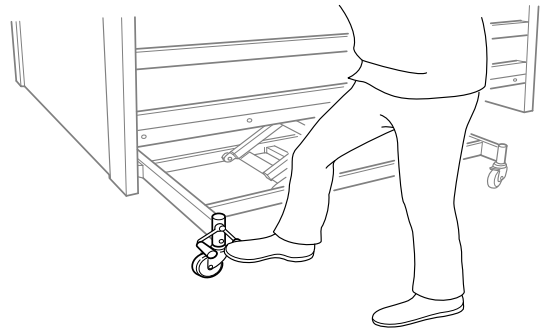
User can fall, while entering or exiting the bed, if brakes are not locked.

- Always lock the brakes before the user is moving in or out of bed or when attending to the user.
- At least one castor at the head end and one castor in the foot end must be locked.

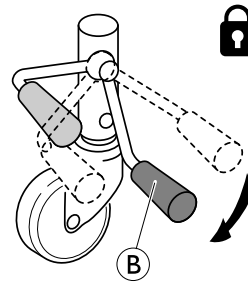
i Castors might make marks on different types of absorbing floor surfaces - such as untreated or badly treated floors. To prevent marks, *Invacare®* recommends to place a suitable kind of protection between the castors and the floor.

3.6.1 Central brake system

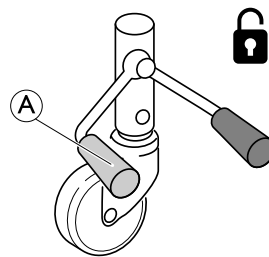
All the wheels are locked by locking one of the pedals.



i Always stand in the middle of the bed's long side when locking the brakes.



1. Lock the brakes:
 Step on the red pedal **B**.



1. Unlock the brakes:
 Step on the green pedal **A** until the brake is in **neutral position** = Both pedals on the same level.

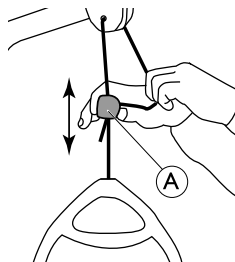
3.7 Lifting pole

WARNING!
Risk of injury

– Do not exceed the maximum load of the lifting pole; 85 kg.

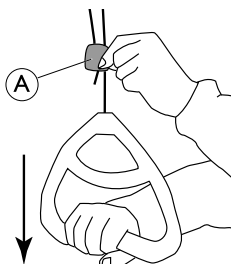
3.7.1 Changing the handle height

1.



Hold the cord out while sliding the plastic cord lock (A) upwards or downwards until the handle reaches the preferred height.

2.



Lock the handle by pressing back the cord in the lock (A) and pull the handle downwards.

! IMPORTANT!

- After adjustment of the lifting pole handle
- Check that the two cords above the cord lock, are parallel and inside the cord lock.
 - Make sure the cord is properly locked by pulling the handle hard.

3.8 Emergency release of the backrest or thigh/leg section



An emergency release of the backrest could be necessary in the case of power- or motor failure.



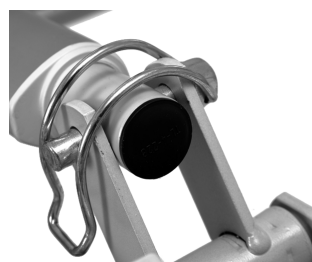
WARNING! Risk of entrapment

- The backrest comes down fast and there is a risk of entrapment under the backrest.
- A minimum of two persons is required to release the backrest.
 - Do not reach under the backrest, while lowering.



IMPORTANT!

- An emergency release of the height adjustment is NOT possible.
- Remove the plug from the mains socket before emergency release of the backrest.



1. Both persons must hold the mattress section.
2. One of them pulls out the cotter pin (from the motor in question).
3. Both persons slowly lower the mattress section until it is completely down.

4 Maintenance

4.1 Cleaning and disinfection

- !** **IMPORTANT!**
Wrong fluids or methods can harm or damage you product.
- Follow instructions carefully for either Non-washable or Washable components.
 - Never use corrosive fluids (alkalines, acid, cellulose thinner, acetone etc)
 - Never use a solvent that changes the structure of the plastic or dissolves the attached labels.
 - Always make sure that the bed is carefully dried before taking it into use again.

4.1.1 Non-washable components

- !** **IMPORTANT!**
Non-washable components cannot withstand washing with Jet based equipment.
- The washability of the components must be determined by authorized personnel.
 - If the components cannot withstand Jet base equipment or if it is unclear they have to be cleaned as non-washable components.

Electrical components

- Method: Wipe off with a wet cloth or soft brush.
Max temp: 40 °C
Solvent/chemicals: Water

Metal components

- Method: Wipe off with a wet cloth or soft brush.
Max temp: 40 °C
Solvent/chemicals: Household detergent or soap and water, 6-8 pH

Wood (including textile straps on side rails, if existing)


- Method: Wipe off with a wet cloth or soft brush.
Max temp: 40 °C
Solvent/chemicals: Household detergent or soap and water, 6-8 pH

Textiles (including upholstery and mattresses)

- Method: See attached label on each product.

5 After Use

5.1 Waste disposal

 Waste disposal/recycle must comply with the laws and regulations for waste handling in each country.

Invacare® is continuously working towards ensuring that the company's impact on environment, locally and globally, is reduced to a minimum.

We comply with the current environment legislation (e.g. WEEE and RoHS directive).

We only use REACH compliant materials and components.

- All wooden parts must be dismantled and sent for incineration.
- All electric parts must be dismantled and be disposed of as electric components.
- Plastic parts must be sent for incineration or recycling.
- Steel parts and castors must be disposed of as waste metals.



IMPORTANT!

Accumulator back-up
– Old accumulators must be returned to *Invacare*® or recycled as car batteries

5.2 Reuse

This product is suitable for reuse after the following has been performed:

- Inspection
- Cleaning



WARNING!

Risk of injury

For detailed information about inspection and cleaning; see the Service manual for this product.

- Always inspect the product according to the service instructions before transferring the product to a different user.
- If any damage is found do not use the product.

6 Troubleshooting

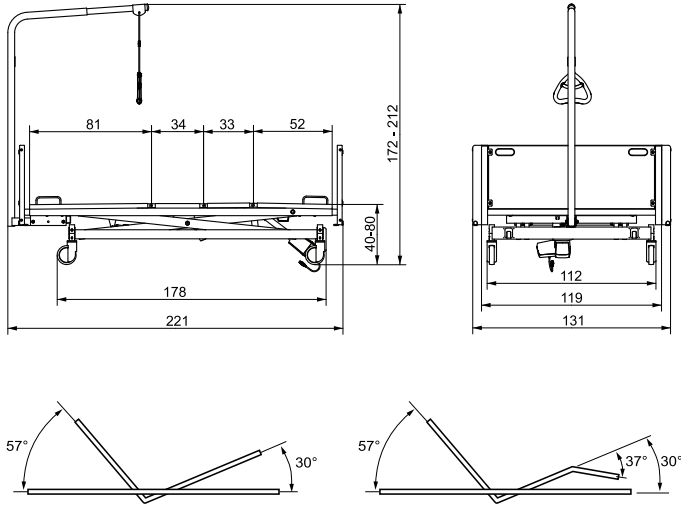
6.1 Troubleshooting

Symptom	Possible cause	Remedy
Bed section does not move	End of stroke reached	Operate opposite button
Full bed: No electric function does work	Bed not plugged in	Plug in mains cable
	Hand control not connected	Ensure hand control correctly connected to control unit.
	Hand control defective	Call dealer / technician to replace hand control
	Control unit defective	Call dealer / technician to replace control unit
	Cables entangled or pinched	Call dealer / technician to replace cables
Side rail does not open or close	Locking mechanism defective	Call dealer / technician to repair side rail

7 Technical data

7.1 Dimensions bed

- All measurements are stated in cm.
- All angles are stated in degrees.
- All measurements and angles are stated without tolerances, on a non-extended bed.



7.2 Weights

Max. User Weight (provided that the weight of the mattress + accessories do not exceed 35 kg)	350 kg
Safe Working Load (weight including mattress + accessories)	385 kg
Mattress support	72 kg
Base incl. shear arm	71 kg
Bed end fitting	5 kg/pc
Wooden bed end	8.5 kg/pc
Complete bed without accessories	170 kg
Wooden trims (2 pcs)	2 kg
Wooden side rail Britt V	7.5 kg/pc
Lifting pole	10 kg
Support handle	2 kg
Mattress (approximately)	8 kg

7.3 Allowed mattress sizes

Allowed mattress height and length depending on the side rail in use


Bed side rails	Allowed mattress sizes		
	Min height	Max height	Min length
Line/Line Extendable	15 cm	21 cm	200 cm
Britt V	15 cm	21 cm	200 cm

Allowed mattress width (for all side rails)

Bed width	Allowed mattress width
130 cm	116 – 120 cm


7.4 Environmental conditions

	Storage and transportation	Operation
Temperature	-10°C to +50°C	+5°C to +40°C
Relative humidity	20% to 75%	
Atmospheric pressure	800 hPa to 1060 hPa	

-  Be aware that when a bed has been stored under low temperatures, it must be adjusted to operating conditions before use.

7.5 Electrical system

Voltage supply	Uin 230 Voltage, AC, 50 Hz (AC = Alternating current)
Maximum current input	lin max.3 Ampere
Intermittent (periodic motor operation)	10 % 2 min ON / 18 min OFF
Insulation class	CLASS II equipment
Type B Applied Part	Applied Part complying with the specified requirements for protection against electrical shock according to IEC60601-1.
Sound level	48 dB (A)
Degree of protection	The control unit, external power supply, motors and hand controls are protected according to IPx4 or IPx6 (depending on configuration). See bed product label and label on each electric device for correct IP class. The lowest IP-classification decides the overall classification of the bed. IPx4: The system is protected against water splashed from any direction. IPx6: The system is protected against water projected from any direction (not high pressure).

-  The bed has no isolator (main switch). If the bed needs to be electrically disconnected, it has to be unplugged from the mains socket.

7.6 Electromagnetic compliance (EMC)

Guidance and manufacturer's declaration – electromagnetic emission


The medical bed is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11(partly)	Group I	The medical bed 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(partly)	Class B	The medical bed 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	

Guidance and manufacturer's declaration – electromagnetic immunity

The medical bed is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 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 %.
Electrostatic 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 differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5% U _T (>95% dip in U _T) for 0,5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles < 5% U _T (>95% dip in U _T) for 5 sec	< 5% U _T (>95% dip in U _T) for 0,5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles < 5% U _T (>95% dip in U _T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the medical bed requires continued operation during power mains interruptions, it is recommended that the medical bed be powered from an un-interruptible power supply or a battery. U _T is the a. c. mains voltage prior to application of the test level.
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.
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 V 3 V/m	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the medical bed including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = \left[\frac{3,5}{V_1} \right] \sqrt{P}$ $d = \left[\frac{3,5}{E_1} \right] \sqrt{P}$ 80 MHz to 800 MHz

Immunity test	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment – guidance
			$d = \left[\frac{7}{E_1} \right] \sqrt{P}$ <p style="text-align: right;">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).^b</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,^a should be less than the compliance level in each frequency range.^b</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

^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 medical bed is used exceeds the applicable RF compliance level above, the medical bed should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the medical bed.

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V/m.

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


Recommended separation distances between portable and mobile RF communications equipment and the medical bed

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

Rated maximum output of transmitter [W]	Separation distance according to frequency of transmitter [m]		
	150 kHz to 80 MHz $d = \left[\frac{3,5}{V_1} \right] \sqrt{P}$	80 MHz to 800 MHz $d = \left[\frac{3,5}{E_1} \right] \sqrt{P}$	800 MHz to 2,5 GHz $d = \left[\frac{7}{E_1} \right] \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

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.

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

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

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1567233-G 2016-01-15



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