USER MANUAL

Centuris™ Bed
From Hill-Rom

Product No. P750

179643 REV 1

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Reference Documents

Centuris™ Bed Service Manual (179644)

Centuris™ Bed Unpacking Instructions (182515)

Table of Contents

Intended Use

The Centuris™ Bed is intended for use in healthcare environments such as acute care and critical care.

Bed safe working load—204 kg maximum, this includes patient weight, mattress, IV pumps, poles, bags, and other equipment.

User Profile

The intended users of this product are healthcare employees who have been trained to use the product, and who have the physical strength and cognitive skills to operate and control the product. There are some controls and features on the bed intended for use by the patients and family members after they receive use instructions from the caregiver. Follow facility safety protocols if an intended user does not have the physical strength or cognitive skills to operate and control the product safely.

Introduction

This manual provides instructions for normal operation of the Centuris™ Bed. Before operating the bed, be sure that you have read and understood in detail the contents of this manual. It is important that you read and obey the aspects of safety that are in this manual. Any reference to a side of the bed is from the patient's view lying in the bed on hir or her back.

Patient Characteristics

⚠ WARNING:

Do not use the product outside of the recommended patient height and weight ranges. Patient injury or equipment damage could occur.

Height—150 to 188 cm

Patient weight—up to 169 kg

Symbols

Document Symbols

This manual uses different typefaces and symbols to make the content easier to read and understand:

- Standard text—used for regular data.
- **Boldface text**—emphasizes a word or phrase.
- **NOTE:**—sets apart special data or important instruction clarification.
- WARNING, RELATIVE CONTRAINDICATION, or CAUTION

  - A WARNING identifies situations or actions that may have an effect on patient or user safety. To ignore a warning could cause patient or user injury.
  - A RELATIVE CONTRAINDICATION identifies situations or actions that may have an effect on patient safety.
  - A CAUTION identifies special procedures or precautions that persons must obey to help prevent equipment damage.

Product Symbols

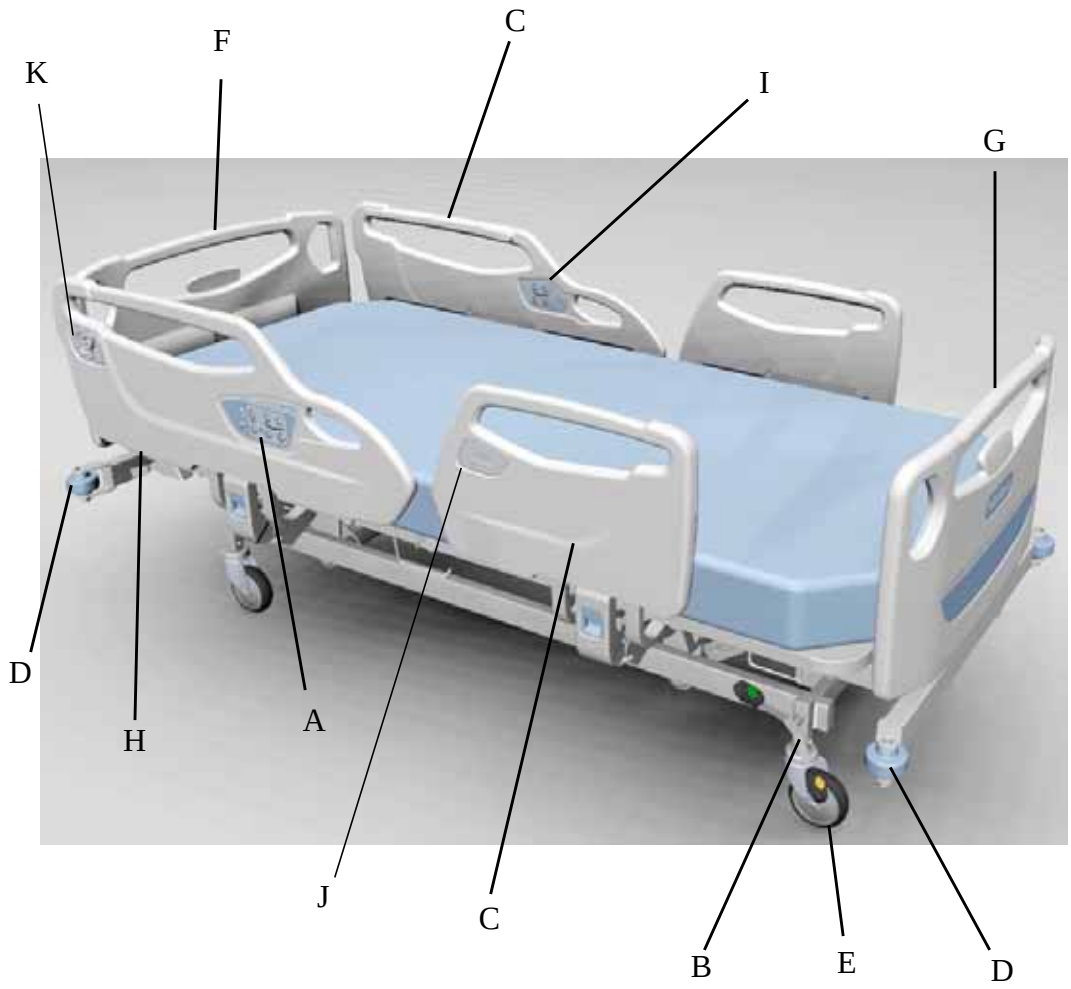
These symbols may or may not be on your version of the Centuris™ Bed.

Symbol	Description
	Type B equipment in accordance with EN 60601-1.
IPX4	In accordance with IEC 60529, rating for protection against fluid ingress and identified as equipment that is protected against unpressurized spraying and splashing water.
	CAUTION: Consult accompanying documents.
	Conforms to the European Medical Device Directive 93/42/EEC. The CE mark was first applied in 2013.

Symbol	Description
	Do Not Use with Oxygen Tents—use oxygen administering equipment of the nasal, mask, or ventilator type only.
~	Alternating current
	Safe Working Load—this includes patient weight, mattress, IV pumps, poles, bags, and such.
	Maximum patient weight
2 min. ON/ 18 min. OFF	Duty cycle
	Dangerous voltage
	Fuse
	Protective earth (ground)
	Manufacturer or distributor complies with the Waste Electric and Electronic Equipment Directive 2002/96/EC.
	Consult accompanying documents.

Symbol	Description
PbS	Lead acid battery
	Indicates handle for lowering the backrest in an emergency to do cardiopulmonary resuscitation (CPR).
	Indicates Neutral and Brake position of the brake/steer pedal (Individual brake caster beds only).
	Indicates Neutral/Brake/Steer position of the brake steer pedal (foot end brake/steer beds only).
	Do not sit or stand on the foot extension.
	Mattress compatability—must consult accompanying document.
	Pinch point—between the upper and lower frames.
	Pinch point—between the footboard/headboard and the sleep deck.

Features



Item	Description
A	Caregiver controls
B	Four-corner brake pedal or foot-end brake and steer bar
C	Siderails
D	Corner bumpers
E	Casters, 12.5 cm
F	Headboard
G	Footboard
H	Emergency CPR handle
I	Patient controls
J	Bed angle indicator
K	Head angle indicator

The bed may also have these features:

- Battery backup function
- Four DC motors
- Complete bed articulation: bed, head, and knee up/down, Trendelenburg/Reverse Trendelenburg, and Auto Contour™ Feature
- Lockout controls
- Standard color scheme from Hill-Rom

Caregiver Controls

This section describes the bed controls that are intended to be used by the caregiver. Not all controls listed are available on all versions of the bed.

⚠ WARNING:
Instruct visitors not to use caregiver controls at any time. Visitors may assist patients in the use of patient controls. Unauthorized use of the caregiver controls may cause injury, cross-contamination, or equipment damage.

Use Emergency CPR Handle

When activated, the Emegency CPR handles disengage the head section actuator so that the head section may lower to the horizontal position. This function can be used when power is not available.

The Emergency CPR handles are located under the sleep deck, at the head end of the bed on both sides of the bed.

1. Lift and hold the handle. Hold the handle until the head section comes to a stop in the flat position.
2. Release the handle.

NOTE:
The Emergency CPR handle **must** be held until the head section of the bed reaches a flat position. Releasing the control handle will cause the head section to stop lowering.

The head section actuator is automatically re-enabled after the CPR control handle is released and Head Down control is pressed.

Raise and Lower the Siderails

⚠ WARNING:
Evaluate patients for entrapment risk in accordance with facility protocol, and monitor patients appropriately. Make sure all siderails are fully latched when in the raised position. Failure to do either of these could cause serious injury or death.

NOTE:
Siderails are intended to be a reminder to the patient of the unit's edges, not a patient-restraining device. When appropriate, Hill-Rom recommends that medical persons determine the correct methods necessary to make sure a patient remains safely in bed.

⚠ WARNING:
Use of a mattress overlay reduces the effective height of the siderails above the sleep surface. When using a mattress overlay, evaluate the patient for the risk of falls, and take appropriate measures. Failure to do so could cause patient injury.

When the bed is occupied, follow facility protocol for siderail usage.

Raise a Siderail

1. Pull the siderail up to its highest position until a **click** is heard.
2. After you hear the click, gently pull on the siderail to make sure it is locked in position.

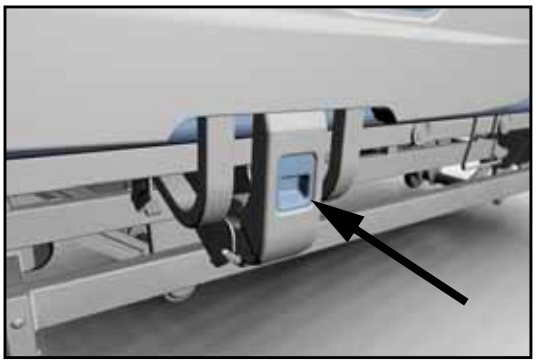
Lower a Siderail

1. Pull up on the siderail release lever.

⚠ CAUTION:

Do not use force to lower the siderail. Equipment damage could occur.

2. The siderail automatically lowers to the down position **without** caregiver assistance.



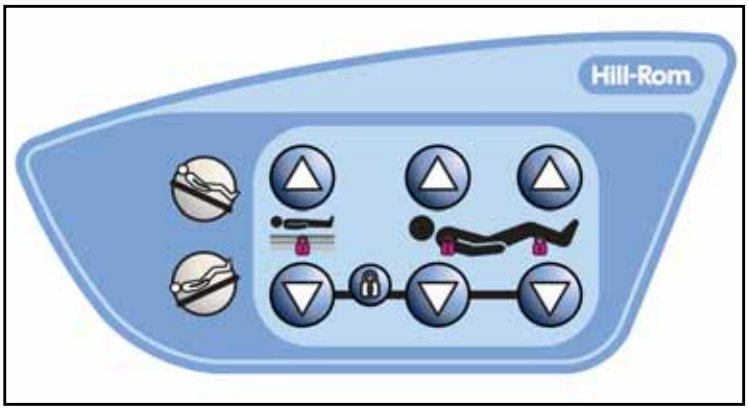
Caregiver Siderail Controls

⚠ WARNING:

Before you lower the bed, look under the bed to make sure there are no people or obstructions between the lower and upper frames of the bed. Failure to do so could cause serious injury or equipment damage.

These controls are on the outside of the head-end siderail:

- Bed Up/Down
- Head Up/Down
- Knee Up/Down
- Trendelenburg
- Reverse Trendelenburg
- Articulation lockouts



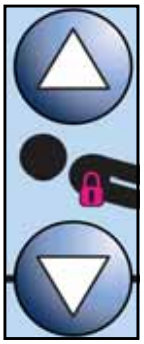
Raise and Lower the Head Section

Press and hold the **Head Up** control to raise the head section to the applicable position. The head section can rise to 65°.

Press and hold the **Head Down** control to lower the head section to the applicable position.

Head Up

Head Down



To determine the specific degree of the head section, look at the head angle indicators located on each side of the bed.

Additionally, the bed is equipped with an Auto Contour™ mode. When the Head Up control is pressed, the Auto Contour™ mode raises the knee section to a maximum of 25°. When the head section is lowered, the knee section will go to the flat position.

– Auto Contour™ Feature - Press and hold the Head control. The head and knee sections rise together to reduce patient migration toward the foot end of the system.

Raise and Lower the Knee Section

Press and hold the **Knee Up** control to raise the knee section. The knee section can rise to 25°. When the knee section goes up or down, the foot section will go up or down also.

Press and hold the **Knee Down** control to lower the knee section.

Knee Up

Knee Down

Raise and Lower the Bed

The bed adjusts in height from a low position, for patient entry or exit, to a high position, for examination.

Press and hold the **Bed Up** control to raise the bed to the applicable position.

Bed Up

Bed Down

⚠ WARNING:
Use caution when you lower the bed frame. To avoid injury, keep extremities from under the lowering bed frame.

Press and hold the **Bed Down** control to lower the bed to the applicable position.

Put the Bed into Trendelenburg or Reverse Trendelenburg

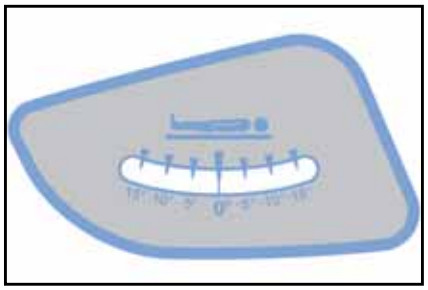
⚠ WARNING:
Before putting the bed in the Trendelenburg or Reverse Trendelenburg position, make sure the end of the bed is at least 15 cm from the wall when fully raised and that the area under the bed is free from obstructions. Failure to do so could cause patient injury, personal injury, or equipment damage.

1. Make sure the end of the bed is at least 15 cm from the wall.
2. Make sure the area under the bed is free from obstructions.
3. Press and hold the **Trendelenburg** or **Reverse Trendelenburg** control to adjust the bed to the applicable position.

Reverse Trendelenburg

Trendelenburg

NOTE:
To determine the specific degree of Trendelenburg or Reverse Trendelenburg, refer to the Trendelenburg indicators that are on each side of the bed.

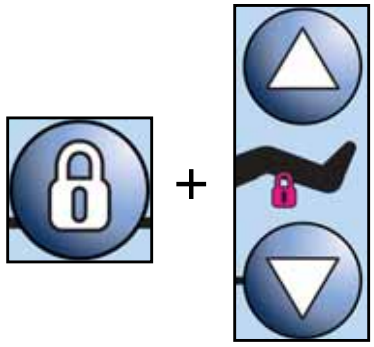


Position Indicator

Control Lockouts

⚠ WARNING:
Locking the patient controls can significantly reduce potential for unintentional movement. If a patient's condition is such that injury could occur from unintentional movement, lock out the patient controls. Failure to do so could result in patient injury or equipment damage.

Press the **Lockout** control and the applicable articulation control at the same time. When the lock indicator is orange, the control is locked out.



The knee lockout is shown as an example.

Pendant Controls

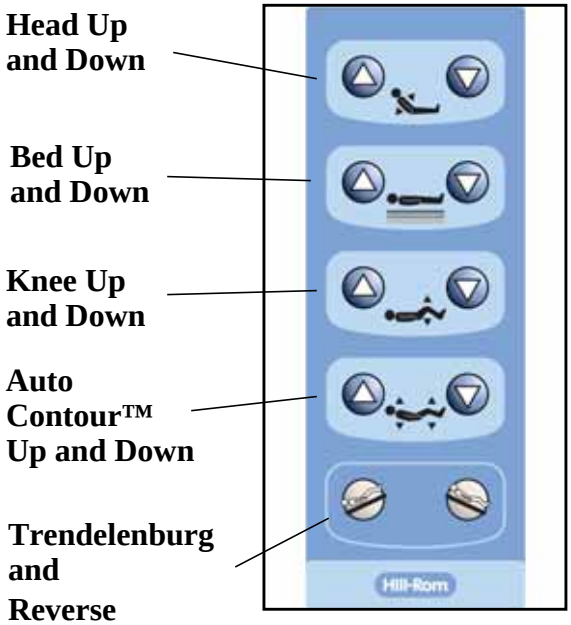
This section describes the pendant controls that are intended to be used by the **caregiver**.

⚠ WARNING:
The caregiver pendant is for use by the caregiver. Store out of reach of the patient when not in use. Patient injury could occur.

⚠ WARNING:
The pendant is not for use inside of an oxygen tent. Patient injury could occur.

The pendant controls operate the same as the siderail controls. When the pendant lock out is activated, all articulation will be locked out.

NOTE:
The Trendelenburg/Reverse Trendelenburg control on the pendant is optional.



To Remove from the Siderail

- Pull straight up on the pendant.

or

- Turn the pendant clockwise or counterclockwise until the mount clip disengages from the siderail or footboard.

To Store

⚠ WARNING:
The pendant should not be stored under the mattress. Patient injury or equipment damage could occur.

- Push straight down on the pendant until the mount clip engages on the siderail.
- Make sure the pendant is secured by the stopper on the siderail.

Pendant Lockout

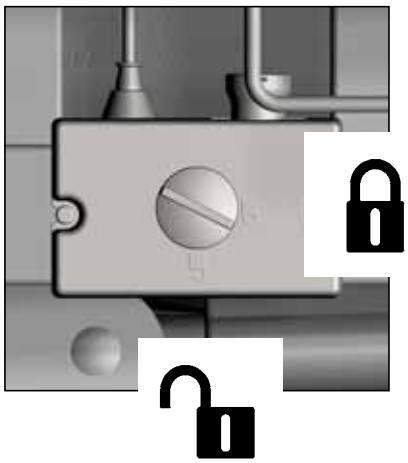
The pendant lockout is on both sides of the bed below the sleep deck. The control disables all functions on the pendant.

To Lock

- Turn the switch to the **Lock** position.

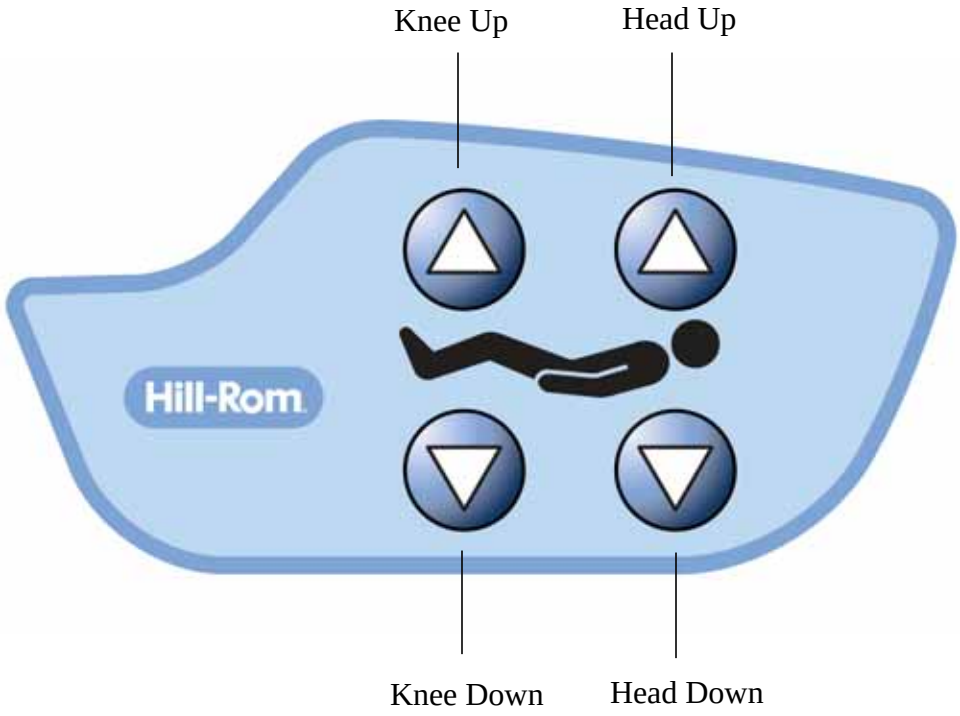
To Unlock

- Turn the switch to the Unlock position.



Patient Controls

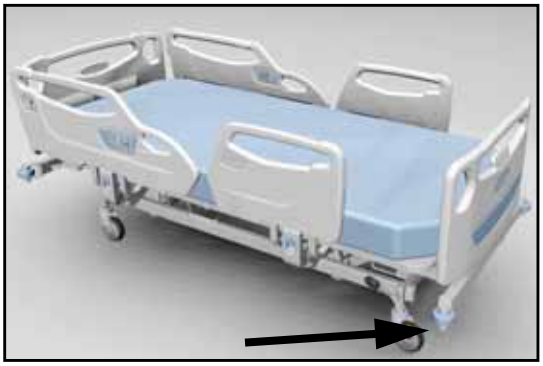
The patient controls are on the inside of the head-end siderails. They function in the same way as the caregiver controls. See “Caregiver Controls” on page 7.



Frame Features

Equipment Sockets

An IV pole can be installed in any of the four equipment sockets located at the four corners of the bed.



Bed End Panels

The bed has mount holes for the bed end panels.

⚠ WARNING:
When you install the end panels, make sure there is nothing between the panel and the bed frame. Injury or equipment damage could occur.

To Install:

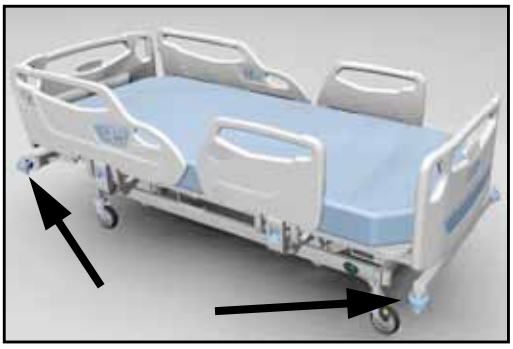
Install a bed end panel by fitting it into the two vertical mount holes at the end of the bed.

To Remove:

Remove a bed end panel by lifting it vertically off the mounting holes.

Bumpers

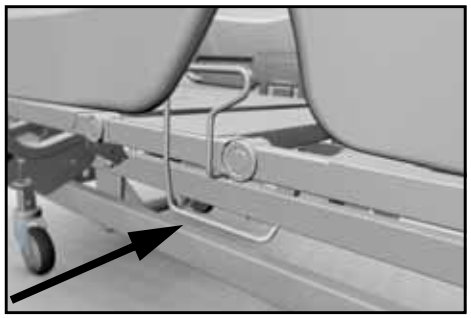
Bumpers are at the four corners of the bed.



Drainage Bag Holders

Drainage bag holders are on both sides of the bed.

Each drainage bag holder can support up to 4 kg.

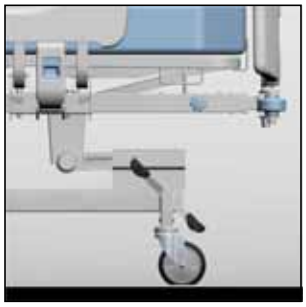


Brake and Steer

There are two configurations of brake and steer: Foot-End and Individual.

Foot-End Brake and Steer

The foot-end brake and steer pedals are above the casters on the foot-end of the bed. There are three positions: Brake, Steer, and Neutral. Use the steer mode to help move the bed in a straight line. Use the brake to keep the bed from moving. Use neutral to move the bed to be sideways.



Brake—Step down on the orange Brake Pedal. Push and pull on the system to make sure that the brake is fully engaged.

Steer—Step down on the green Steer Peda.

Neutral —Put the Brake/Steer Pedal in the level position.

Individual Brake and Steer

The brake casters are at the four corners of the bed.

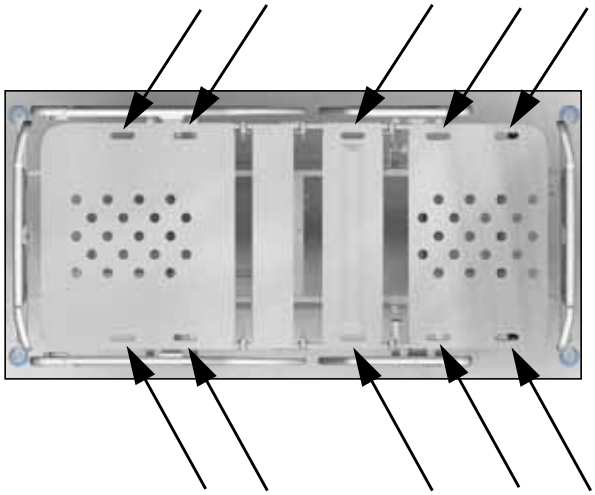
Lock the caster—step on the lower end of the brake lever to lock the caster.

Unlock the caster—step on the upper end of the brake lever to push it forward and unlock the caster.

Patient Restraint Straps

⚠ WARNING:

Patient restraints are not intended as substitutes for good nursing practices. Physical restraints, even correctly installed, can cause entanglement, physical injury, and death, particularly with agitated and disoriented patients. Monitor patients when using physical restraints in accordance with legal requirements and facility protocol.



Installation slots for patient restraint straps are on both sides of the sleep surface, near the siderails. For restraining devices, consult the restraint manufacturer's instructions for use to verify the correct application of each restraining device.

Foot Extension

The foot extension allows the foot section to extend 10 cm.

To Extend the Foot Section

1. Loosen the control knobs on each side of the bed under the foot section.
2. Pull the foot section out until it stops.
3. Tighten the control knobs.
4. When the foot section is extended, insert the mattress foot extender pad between the mattress and the end panel.

To Retract the Foot Section

1. Remove the mattress foot extender pad.
2. Loosen the control knob on each side of the bed under the foot section.
3. Push the foot section in until it is fully retracted.
4. Tighten the control knobs.

Battery Backup

The bed has a battery backup as a optional feature. The battery permits you to operate the Bed, Head, and Knee Up/Down functions when AC power is not available.

When the battery charge level is not sufficient enough to operate the bed, and a control is pressed, an alarm sounds. Connect the bed to AC power to recharge the battery.

NOTE:
If the battery alarm sounds, it may take **8 to 12 hours** to fully recharge.

⚠ CAUTION:

If the bed will not be in service for an extended period of time, have the applicable maintenance persons remove the battery. Failure to do so could result in damage to the life of the battery or to the bed.

To make sure the battery is always charged, plug the bed into an applicable power outlet whenever possible.

Mattress

⚠ WARNING:

Mattresses that are undersized for the frame create a gap between the mattress and the siderails. The risk increases for patient entrapment or suffocation. Evaluate patients for vulnerability, and monitor patients appropriately. Failure to do so could result in patient injury or death.

⚠ WARNING:

If the patient stays in the bed when the bedding is changed, do **not** pull on the bedding with excessive force. Patient injury could occur.

⚠ WARNING:

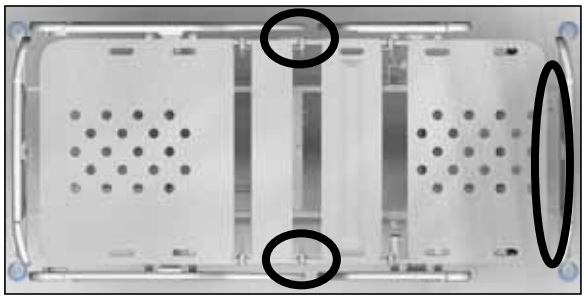
Patients should not be allowed to smoke in bed. Sheets and pillows generally do not have flame-resistant properties. Personal injury or equipment damage could occur.

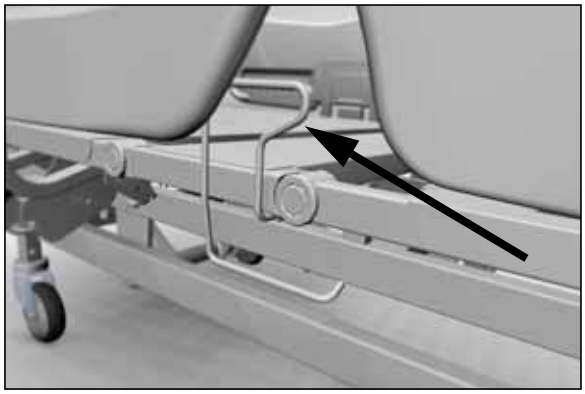
The bed is compatible with these mattresses from Hill-Rom:

Model	Size (length x width x thickness)
NP50 (ASS028)	198 cm x 90 cm x 14 cm
NP50 (P50A7F)	203.2 cm x 90.2 cm x 15.2 cm
NP100 (ASS031)	198 cm x 90 cm x 14 cm
NP100 (P100A4)	203.2 cm x 90.2 cm x 15.2 cm
NP150 (ASS034)	198 cm x 90 cm x 14 cm
P564CA3	203.2 cm x 90.2 cm x 15.2 cm
P709CB1	203.2 cm x 90.2 cm x 15.2 cm

Mattress Retainers

There are three mattress retainers on the bed. One on each side of the sleep deck and one at the foot end of the sleep deck. The retainers help the mattress to stay in the correct position on the bed.





Accessories

Accessories

Part Number	Description
P1445A	Removable IV pole
P145920	Removable IV pole (offset style)
P145910	Oxygen tank holder
P145911	Patient helper with handle
P145912	Traction frame
P145915	Mattress extender

Removable IV Pole (P1445A)

⚠ WARNING:
Do not exceed the load capacity of the IV pole. If the IV pole is overloaded, injury or equipment damage could occur.

⚠ WARNING:
Failure to correctly install the IV pole could allow it to fall, resulting in injury or equipment damage.

⚠ WARNING:
Uneven loading of the IV pole could allow the contents to fall, and could cause injury or equipment damage.

The IV pole is a removable telescopic pole that installs in any of the four equipment sockets on the bed. The IV pole can hold 11 kg.

Removable IV Pole (P145920) (Offset Style)

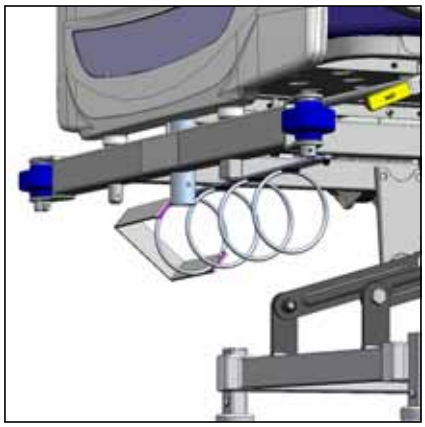
⚠ WARNING:
Do not exceed the load capacity of the IV pole. If the IV pole is overloaded, injury or equipment damage could occur.

⚠ WARNING:
Failure to correctly install the IV pole could allow it to fall, resulting in injury or equipment damage.

⚠ WARNING:
Uneven loading of the IV pole could allow the contents to fall, and could cause injury or equipment damage.

The IV pole is a removable telescopic pole that installs in any of the four equipment sockets on the bed. Each IV pole hook can hold 2 kg.

Oxygen Tank Holder (P145910)



The oxygen tank holder is mounted at the head-end of the bed, under the end panel.

⚠ WARNING:
Failure to follow facility protocols when you use oxygen equipment and supplies could cause injury or equipment damage.

⚠ WARNING:
When you install or remove the oxygen tank from the oxygen tank holders, do not lift or pull the oxygen tank by the regulator. To do so could cause injury or equipment damage.

⚠ WARNING:
Do not use an oxygen tank that has a regulator that extends past the bumpers on the bed. To do so could cause injury or equipment damage.

⚠ WARNING:
The use of a humidifier with an oxygen tank in the horizontal position could cause injury or equipment damage.

⚠ WARNING:
Do not exceed the load capacity of the tank holder. If the tank holder is overloaded, injury or equipment damage may occur.

The safe working load of the oxygen tank holder is 13.6 kg.

For installation and removal, refer to the instructions included with the tank holder.

Patient Helper (P145911)

The Patient Helper installs in the center equipment socket at the head end of the bed.

⚠ WARNING:
Do not exceed the load capacity of the Patient Helper. If the Patient Helper is overloaded, injury or equipment damage may occur.

The safe working load of the Patient Helper is 75 kg.

Traction Frame (P145912)

The Traction Frame is mounted in the equipment sockets at each corner of the bed.

Refer to the manufacturer's installation and user instructions for operation information and safe working load.

⚠ WARNING:
When a traction frame is used for mounting Buck's traction, the knee controls should be locked out.

⚠ WARNING:
When a traction frame is used for cervical traction, the head and knee controls should be locked out.

⚠ WARNING:
To avoid injury, the bed should not be operated until all persons are clear of mechanisms and the traction frame.

⚠ WARNING:
Do not use the traction frame to push, pull, or steer the bed. Use the end panels.

⚠ WARNING:
After the traction frame is installed, check the thigh section for proper, unobstructed movement, and check the siderails to make sure latching in the up position, and proper operation.

Mattress Extender (P145915)

The mattress extender is used to fill in the gap between the mattress and the end panel when the foot section is extended to its full length.

To Install

1. Fully extend the foot section.
2. Insert the extender between the end panel and mattress.
3. Attach the extender to the bed frame with the Velcro®[1] straps.

1. Velcro® is a registered trademark of Velcro Industries, BV (a Dutch corporation)

Cleaning

These instructions are for the bed only. Refer to the mattress manufacturers instructions for the cleaning the mattress.

⚠ WARNING:
Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

⚠ WARNING:
The potential for electrical shock exists with electrical equipment. Failure to follow facility protocols may result in death or serious personal injury.

⚠ WARNING:
Unplug the unit from its power source. Failure to do so could result in personal injury or equipment damage.

⚠ WARNING:
Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

⚠ CAUTION:
Do not use harsh cleansers, solvents, or detergents. Equipment damage could occur.

General Cleaning

We recommend that you clean the unit with detergent and warm water. Do not use excessive liquid or harsh cleansers.

Steam Cleaning

Do not use any steam cleaning device on the unit. Excessive moisture can damage mechanisms in this unit.

Cleaning Hard to Clean Spots

To remove difficult spots or stains, we recommend that you use standard household cleansers and a soft bristle brush. To loosen heavy, dried-on soil, you may first need to saturate the spot.

Disinfecting

When there is visible soilage and also between patient use, we recommend that you disinfect the unit using a tuberculocidal disinfectant.

Dilute and use the disinfectant as specified on the manufacturer's label.

Recommended Cleaning/Disinfectants Solutions

Chemical Class	Active Ingredient
Quaternary ammonium chloride	Didecyl dimethyl ammonium chloride Alkyl dimethyl benzyl ammonium chloride
Quaternary ammonium chloride	Alkyl dimethyl benzyl ammonium chloride Alkyl dimethyl ethylbenzyl ammonium chloride
Chlorine releasing agent (bleach)	Sodium Dichloroisocyanurate
Alcohol	Isopropyl alcohol

Hill-Rom recommends the use of a disinfectant with a neutral pH value.

⚠ WARNING:

Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

The solutions listed can be used to clean and/or disinfect. Refer to the manufacturer's label for instructions.

Maintenance

⚠ WARNING:

Only facility-authorized persons should service the Bed. Service by unauthorized persons could cause injury or equipment damage.

Do annual preventive maintenance to make sure all bed functions operate correctly. Pay particular attention to safety features, that include, but are not limited to these:

- Siderail latching mechanisms
- Caster braking systems
- Electrical cords and components
- Control function operation
- Lockout function operation
- Battery backup
- CPR release

Parts and Accessories

⚠ WARNING:

Do not modify the bed without authorization from Hill-Rom. Injury or equipment damage could occur.

Use only Hill-Rom parts and accessories. Do not modify the bed system without authorization from Hill-Rom.

Bed Battery Disposal

The battery backup power comes from a lead acid battery. Hill-Rom recommends replacing the battery **every three years**. Discard the battery in accordance to your local regulations. For assistance, contact your maintenance persons.

Safety Tips

Bed Position

⚠ WARNING:
Make sure the bed works correctly and is connected to AC power before you put a new patient on the bed.

⚠ WARNING:
Do not operate the bed in the presence of flammable gas or vapors. To do so could cause injury or equipment damage.

⚠ WARNING:
Use oxygen administering equipment of the nasal, mask, or ventilator type only. Do not use the bed with oxygen tents or in oxygen rich environments. To do so could cause injury or equipment damage.

⚠ WARNING:
It is recommended that the unit be in the low position when the patient is unattended. This may reduce the severity of any resultant injuries from patient falls.

⚠ WARNING:
When a patient's condition (such as disorientation due to medication or clinical condition) could lead to patient entrapment, the sleep deck should be left in the flat and lowest position while unattended (except when required otherwise by medical staff for special or particular circumstances). Failure to do so could cause patient injury or death.

⚠ WARNING:
Before putting the bed in the Trendelenburg or Reverse Trendelenburg position, make sure the end of the bed is at least 15 cm from the wall when fully raised and that the area under the bed is free from obstructions. Failure to do so could cause patient injury, personal injury, or equipment damage.

⚠ WARNING:
Make sure hands, arms, legs, and feet are not under the bed or between sleep deck sections as they move. Injury could occur.

When you change bed positions, make sure that hands, feet, and equipment are away from the frame assemblies.

⚠ WARNING:
Make sure you position tubes, lines, and linens away from moving parts. Failure to do so could cause patient injury.

⚠ WARNING:
Mechanical parts under the bed pose a risk of serious injury. Exercise control over visitors, especially children, to keep people out from under the bed and prevent unauthorized access to the bed positioning controls. Failure to do so could cause injury, or equipment damage.

⚠ WARNING:
Using the lockout system can significantly reduce potential for unintentional movement. If a patient's condition is such that injury could result from unintentional movement, use the lockout system. Failure to do so could result in patient injury or equipment damage.

⚠ WARNING:
Make sure there is sufficient distance between the bed and the power outlet to unplug the bed. Failure to do so could cause injury or equipment damage.

⚠ WARNING:
When you put cables from other equipment on the bed, use caution to avoid pinching the cables between moving parts of the bed. Failure to do so could cause injury or equipment damage.

Siderails

⚠ WARNING:
Evaluate patients for entrapment risk according to facility protocol, and monitor patients appropriately.

⚠ WARNING:
Evaluate patients for entrapment risk according to facility protocol, and monitor patients appropriately. Ensure that all siderails are fully latched when in the raised position. Failure to do either of these could result in serious injury or death.

NOTE:
Siderails are intended to be a reminder to the patient of the unit's edges, not a patient-restraining device. When appropriate, Hill-Rom recommends that medical persons determine the correct methods necessary to make sure that the patient remains safely in bed.

⚠ WARNING:
Use of a mattress overlay reduces the effective height of the siderails above the sleep surface. When you use a mattress overlay, evaluate the patient for the risk of falls, and take appropriate measures. Failure to do so could result in patient injury.

To make sure the siderails are latched, give the siderails a gentle push in a downward direction.

Patient Restraints

⚠ WARNING:

Patient restraints are not intended as substitutes for good nursing practices. Physical restraints, even correctly installed, can cause entanglement, physical injury, and death, particularly with agitated and disoriented patients. Monitor patients when using physical restraints in accordance with legal requirements and facility protocol.

1. Develop guidelines for all patients to determine:
   - Which patients may need to be restrained and the appropriate restraint to use.
   - The correct method to monitor a patient, whether restrained or not, include the time interval, visual check of restraint, and such.
2. Develop training programs for all caregivers in regard to the correct use and application of restraints.
3. Keep the bed at its lowest position whenever a caregiver is not in the room.
4. Clarify the need for restraint devices to families or guardians.
5. Use only the locations on the sleep deck (eight total) to attach the patient restraints to.

For restraining devices, consult the restraint manufacturer's instructions for use to verify the correct application of each restraining device.

Brakes

⚠ WARNING:

Except for patient transport, always set the brakes when the unit is occupied. Make sure that the brakes are set before any patient transfer. Failure to do so may result in injury or equipment damage.

Patients often use the bed for support when getting off the bed and could be injured if the bed unexpectedly moves. After setting the brakes, push and pull the bed siderails to make sure it is secure.

Electrical Safety

⚠ WARNING:

The risks associated with the use of electrical beds exceed the obvious electrical shock hazards. Whenever a bed is being serviced, unplug it from its power source, and disconnect the battery backup. Failure to do so could result in personal injury or equipment damage.

⚠ WARNING:

Make sure the bed is connected to the correct mains power. Do not connect a 120 V bed to a 230 V power supply, and do not connect a 230 V bed to a 120 V power supply. Injury and equipment damage could occur.

⚠ WARNING:

To reduce the risk of electric shock, the bed should only be connected to supply mains with a protective earth.

⚠ WARNING:

Incorrect use or handling of the power cord may cause damage to the power cord. If damage has occurred to the power cord, immediately remove the bed from service, and contact the applicable maintenance persons. Failure to do so could cause injury or equipment damage.

When the integrity of the external protective earth conductor is in doubt, operate the bed from its internal battery backup.

The bed frame and casters are not grounded. Do not use them for device grounding.

NOTE:
The power cord is non-detachable and should only be replaced by trained service persons.

Discard the Bed Battery

Dispose of the battery correctly and according to your local regulations. For assistance in disposing of the battery, contact your maintenance personnel.

The bed battery should be replaced every three (3) years.

Emergency CPR

The emergency CPR is to be used by healthcare professionals **only**.

Battery Backup

⚠ CAUTION:

If the bed will not be in service for an extended period of time, have appropriate maintenance personnel remove the battery. Failure to do so could result in damage to the life of the battery or to the bed.

The battery backup power comes from a lead acid battery, which needs to be disposed of correctly and according to your local regulations. For assistance in disposing of the battery, contact your maintenance technician.

Mattresses

⚠ WARNING:

Mattresses that are undersized for the frame create a gap between the mattress and the siderails. The risk increases for patient entrapment or suffocation. Evaluate patients for vulnerability, and monitor patients appropriately. Failure to do so could result in patient injury or death.

⚠ WARNING:

If the patient remains in the bed when the bedding is changed, do **not** pull on the bedding with excessive force. Patient injury could occur.

⚠ WARNING:

Patients should not be permitted to smoke in bed. Sheets and pillows generally do not have flame-resistant properties. Personal injury or equipment damage could occur.

Unless the facility takes certain precautions, the area between the mattress and the siderails may create a gap in which highly vulnerable patients may become entrapped and suffocate:

- Mattresses that are undersized for the frame may create a gap and increase the risk.
- Evaluate patients for vulnerability, and monitor patients appropriately.

Transport

⚠ WARNING:

The Bed is intended to be used to transport patients with the foot end or head end of the bed forward. Before transport, correctly store the power cord to help prevent tripping. Use only the end panels to move the bed during transport. Failure to do so could cause injury or equipment damage.

⚠ WARNING:

Make sure the bed is not transported over a side inclination of more than 5°. Failure to do so could cause personal injury or equipment damage.

Troubleshooting

Bed Overheats or Shuts Down after Extensive Operation

The Bed protects itself from overheating. To help make sure overheating does not occur, during clinical tasks, do not operate the functions more than necessary.

If the bed shuts down after extensive operation, do as follows:

1. Unplug the bed from its power source.
2. Let the bed cool for 20 minutes.
3. Plug the bed into an applicable power outlet.
4. If the problem still continues, call Hill-Rom Technical Support.

Technical Specifications

Product Identification

Product Number	Description
P750	Centuris™ Bed

Dimensions

Feature	Dimension
Length—fully retracted	220 cm
Length—fully extended	230 cm
Sleep deck length	196 cm
Minimum width—with siderails raised	100 cm
Maximum width—with siderail stored	105.5 cm
Sleep deck width	86.4 cm
Maximum head end panel height	40 cm
Minimum underbed clearance	13.5 cm
Wheel base	155 cm
Caster size	12.5 cm
Maximum weight—no surface or accessories	150 kg
Recommended dimensions for the mattress (see “Mattress” on page 17):	
Mattress width (minimum)	90 cm
Mattress width (maximum)	90.2 cm
Mattress length (minimum)	198 cm
Mattress length (maximum)	203.2 cm
Mattress thickness (minimum)	14 cm
Mattress thickness (maximum)	15.2 cm

Specifications

Feature	Dimension
Head section inclination (maximum)	65°
Knee section inclination (maximum)	25°
Sleep deck height range	46.5 cm to 76.5 cm
Trendelenburg position (maximum)	12°
Reverse Trendelenburg position (maximum)	12°
Bed lift capacity (maximum safe working load)	204 kg
Maximum height of seat section (in Trendelenburg position)	59 cm

Environmental Conditions for Transport and Storage

Condition	Range
Temperature	-40°C to 70°C ambient temperature
Relative humidity (RH)	20% to 95%, non-condensing
Pressure	50 kPa to 106 kPa

Environmental Conditions for Use

Condition	Range
Temperature	5°C to 40°C ambient temperature
Relative humidity (RH)	30% to 90%, non-condensing
Atmospheric pressure	70 kPa to 106 kPa

Mains Power Requirements

Condition	Range
Rated voltage	120 V, 230 V
Power/Input	2 A
Frequency	230 V—50/60 Hz 120 V—60 Hz

Battery Specifications

Condition	Range
Maximum battery life, with no functions operated and the bed unplugged from its power source	1 week
Time necessary to recharge a fully discharged battery	12 hours

Classification and Standards

Technical and Quality Assurance Standards	IEC 60601-1:2005 + A1:2012 EN 60601-1:2006 + A11:2011 IEC 60601-2-52:2009 EN 60601-2-52:2010 EN 60601-1:1990 + A1:1993 + A2:1995 IEC 60601-1:1988 + A1:1991 + A2:1995; EN 60601-2-38:1996 + A1:2000 IEC 60601-2-38:1996 + A1:1999 EN60601-1-2:2007 IEC 60601-1-2:2007 ISO 9001:2008 ISO 13485:2003
Equipment classification per EN 60601-1	Class I equipment, internally powered equipment
Degree of protection against electric shock per EN 60601-1	Type B
Classification according to Directive 93/42/EEC	Class I
Degree of protection against the presence of flammable anaesthetic mixtures	Not for use with flammable anaesthetics.
IPX classification	IPX4—According to IEC 60529, rating for protection against fluid ingress and identified as equipment that is protected against unpressurized spraying and splashing water.

Electromagnetic Compatibility

Medical electrical equipment needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to the EMC information provided in this user manual.

Portable and mobile radio frequency (RF) communications equipment can affect medical electrical equipment.

⚠ WARNING:

The use of parts and cables other than those specified by manufacturer as replacement parts for internal components, may result in increased EMISSIONS or decreased IMMUNITY.

⚠ WARNING:

The P750 should not be used adjacent to or stacked with other equipment. If adjacent and stack are necessary, the normal function of P750 and other equipment shall be observed.

⚠ WARNING:

The P750 is intended for use by healthcare professionals only. If P750 is found to cause radio interference or disrupt the operation of nearby equipment, it may be necessary to take mitigation measures, such as re-orienting or relocating the device or shielding the location.

Electromagnetic Emissions Guidance

Guidance and Manufacturer's Declaration—Electromagnetic Emissions		
The P750 is intended for use in the electromagnetic environment specified below. The customer or the user of the P750 should make sure it is used in such an environment.		
Emissions Test	**Compliance**	**Electromagnetic Environment—Guidance**
RF Emissions CISPR 11	Group 1	The P750 uses RF energy only for its internal functions. Therefore, its RF emissions are low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The (Equipment or 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	

Electromagnetic Immunity Guidance

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The P750 is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should make sure it is used in such an environment.			
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	± 2 kV for Power Supply 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.
Voltage dips, short interruptions, and variations on power supply lines IEC 61000-4-11	< 5% U_T (> 95% dip in U_T) for 0.5 cycles 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 seconds (See Note 1)	< 5% U_T (> 95% dip in U_T) for 0.5 cycles 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 seconds	Mains power quality should be of a typical commercial or hospital environment. If the user of the P750 requires continued operation during power mains interruption, it is recommended that the P750 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60hz) magnetic fields IEC 61000-4-8 (see Note 1)	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 1: U_T is the AC mains voltage prior to application of the test level.			

Electromagnetic Immunity Guidance

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The P750 is intended for use in the electromagnetic environment specified below. The customer or the user of the P750 should make sure it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment—Guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the P750, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	$d = 1.2\ \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\ \sqrt{P}$ 80 MHz to 800 MHz $d = 2.33\ \sqrt{P}$ 800 MHz to 2.5 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 in metres (m). 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]. Interference may occur in the vicinity of equipment marked with the following symbol. 
Note 1: At 80 MHZ and 800 MHz, the higher the 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 P750 is used exceeds the applicable RF compliance level above, the P750 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the P750.

b. Over the frequency range of 150 kHz to 80 MHz, field strength should be less than *3* V/m.

Recommended separation distances between portable and mobile RF communications equipment and the P750 Model

The P750 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the P750 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the P750 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** $d = 2.33\sqrt{P}$
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.


Hill-Rom