

WARNING

USE THE "DEVICE IMPLANT" PROTOCOL LOCATED IN THE ELECTROPHYSIOLOGY CATEGORY OR ANY PROTOCOL UNDER THE "NEEDLE" CATEGORY WHICH AUTOMATICALLY DISABLES THE INNOVASENSE PATIENT CONTOURING FUNCTION IN CASE OF A PROCEDURE THAT INVOLVES THE USE OF SMALL INVASIVE OBJECTS/ DEVICES (I.E. BIOPSY OR OTHER NEEDLES), OR OBJECTS MADE OF NON-CONDUCTIVE MATERIALS (PLASTIC... I.E. OXYGEN MASK), WHICH PROJECT OUT FROM THE PATIENT SKIN SURFACE. THESE OBJECTS/ DEVICES ARE TOO SMALL AND/OR CANNOT BE DETECTED BY THE CAPACITIVE SENSORS. FAILURE TO DO THIS MAY CAUSE SEVERE PATIENT INJURY IF THE DETECTOR HITS THE INVASIVE OBJECT/DEVICE.

WARNING

DURING SURGERY, USE A PROTOCOL FROM THE "SURGERY" CATEGORY, WHICH WILL AUTOMATICALLY DISABLE THE INNOVASENSE PATIENT CONTOURING FUNCTION. SURGICAL DEVICES WHICH PROJECT OUT FROM THE PATIENT MAY NOT BE DETECTED BY THE CAPACITIVE SENSORS. FAILURE TO DO THIS MAY CAUSE SEVERE PATIENT INJURY IF THE DETECTOR HITS THE INVASIVE OBJECT/DEVICE.

The protocol must be selected before starting the procedure.

**NOTE**

When using an Angio protocol (all protocols in the Vascular and Interventional Neuro categories, all but Cardiac protocols in the Pediatric category), the InnovaSense patient contouring function is automatically deactivated at each new protocol selection or end of exam activation.

**NOTE**

Although InnovaSense patient contouring function dynamically adapts the receptor distance, the user is advised at all times to visually guide and control the optimal receptor positioning. This is specifically important while positioning the receptor near small human anatomy such as a nose, the head etc., near objects made of nonconductive material such as oxygen mask, or near an area where a puncture needle is positioned in the patient's body.

**NOTE**

The receptor will not automatically move out of the way during non-motorized table movement.

12.4 Accessories and auxiliary devices

12.4.1 Radiation Shields

Table mounted radiation shields

Table mounted radiation shields protect operators against scattered radiation from sources beneath the table top.

Figure 12-11 With Innova^{IQ} Table



Figure 12-12 With Magnus Maquet OR Table



WARNING



ALWAYS REMEMBER TO REMOVE THE TABLE MOUNTED RADIATION SHIELDS FROM THE REMOVABLE/RETRACTABLE RAILS BEFORE TILTING THE TABLE.

Ceiling mounted radiation shields

Ceiling mounted radiation shields offer operators additional protection against scattered radiation.



WARNING



WHEN POSITIONING THE CEILING MOUNTED RADIATION SHIELDS AVOID COLLISIONS WITH OTHER CEILING SUSPENDED EQUIPMENT SUCH AS MONITOR SUSPENSIONS.

Combining the ceiling mounted radiation shield and the table mounted radiation shield assures maximum protection for operators.

12.4.2 Omega and Innova^{IQ} Table accessories

Attach only GE HealthCare approved accessories to the table. Be sure to connect each accessory to the proper connector, as labeled on the table. In particular, be sure to connect the grounding cables.

To avoid damage to an accessory or the table covers, accessories such as an IV Pole should not be placed too low or within an area that would cause contact with the table covers during vertical or tilt motions.

WARNING



CHECK THAT EACH ACCESSORY IS PROPERLY MOUNTED AND CLAMPED IF PROVIDED WITH CLAMPS BEFORE ANY USE.

12.4.2.1 Table Head Extender

X-Ray exposure must not be performed with the X-Ray Tube above the table with the table extender between the patient and the image receptor.

The table head extender can be mounted at the head of the table to facilitate patient positioning for example in the case of leg exams or feet first positioning.



It is recommended to retract and rotate the table away from the gantry during installation and removal of the extender.

Follow these instructions to install the extender to the tabletop:

- Insert the carbon fiber board of the extender between the tabletop and the table mattress, with the side having the locking mechanisms facing down.
- Slide the extender toward the end of the table until the Clamps below the board touch the shoulder of the tabletop.



NOTE

Avoid pinching the patient's skin when inserting the extender to the tabletop.

- Rotate the knob below the board in clockwise direction to fix the extender.



To dismount the Head Extender from table top, unclamp the Knobs and pull the extender out of the tabletop.

12.4.2.2 IV pole

7.9.4

The IV pole provides support for any IV bag when intravenous therapy needs to be administered to the patient.



The IV pole clamps with through hole are also available for IV pole mounting. These clamps can be mounted on a fixed accessory rail.



12.4.2.3 Quick Strap

Disposable Velcro[®]-like strap helps immobilize patient.

7.9.3



Quick strap is not to be used when the table is tilted. The strap might exert mechanical force which may harm the patient.

12.4.2.4 Clear-Vu Arm Support

14.3

The Clear-Vu Arm Support provides comfortable means of supporting the patient's arms in a prone or supine position during an interventional procedure.



12.4.3 Innova^{IQ} Table accessories

12.4.3.1 Removable rails (sleeve)

Removable rails are used to mount patient comfort and interventional accessories like the armboard with thick pad (armrest), the head widener, the rail extender, the adapter rail, the universal clamp, the round post clamp, the patient restraint strap, the IV pole, the anesthesia screen. All these accessories are described in section [12.4.3.2 Comfort accessories on page 420](#).

Rails are available in US (9.52 x 28.5 mm) and European (10 x 25 mm) standard size.

Before mounting the removable rails (sleeve), locate and secure all tubing, wires or catheters to avoid pinching, pulling or otherwise interfering with safe and proper patient care.

It is recommended that the table be rotated away from gantry during sleeve insertion removal from the table.

**NOTE**

When using both the sleeve and head widener, the sleeve must be mounted prior to mounting the head widener. Reciprocally, remove the head widener before removing the sleeve.

Sleeve is not compatible with table head extender.

Installation

1. Holding the removable rails (sleeve) by each rail, slide it on to the table top until the table corners contact the inside of the curved portion of the removable rails (sleeve).



2. Rotate the knob on each side upward into the locked position to secure the removable rails (sleeve) in place. A potential equalization terminal is available on the rails to bring the various parts of equipment or systems to the same potential when connected together.

**Removal**

1. Before removing the rails, check that tubing, wires or catheters are not entangled.
2. Remove all accessories from the rail including any potential equalization plugs.
3. Unlock the removable rails (sleeve) by rotating the lock knob downward.
4. Grip the removable rails (sleeve) by the rails and pull it toward you.

Equipment care

Inspect the removable rails (sleeve) and rails for damage, dents, or cracks before each use. If they seem damaged or broken, contact your representative for repair or replacement.

12.4.3.2 Comfort accessories

These accessories are delivered with their own instructions for use. Refer to them before any use.



NOTE

Comfort accessories must not be used to pan and/or handle the table. Operators should not lean on the accessories which are mounted on the table.

Accessories should be only mounted on the compatible rails (e.g.: no surgical accessories should be mounted on the table accessory rails which are different in size from the surgical rails). Width extender can get dislodged from sleeve due to force from width extender located below the table.

A cart allows housing of all the table comfort accessories for storage.



Armboard with a thick pad (Armrest)

7.9.2

The armboard with a thick pad/cushion (armrest) is mounted on the removable rails (sleeve) to support patient's arms.

The armrest is clamped on the removable rails. The arm board's position can be adjusted by lifting and rotating its extremity to the desired angle.



Rail Extender 14.3

The rail extender is mounted on the removable rails (sleeve).

It is clamped and locked at the head end of the sleeve. Follow the indications marked on the sleeve to position the rail extender properly.



Round Post Clamp 14.3

The round post clamp is used to mount round posts of an IV pole and the anesthesia screen holder on the removable rails (sleeve) or the rail extender.

Round post clamps are clamped on the sleeve or the rail extender.



Anesthesia Screen Holder 14.3

The anesthesia screen holder helps separate the patient's head from the surgical site during procedures. The malleable screen holder allows conforming to any shape required by the user.

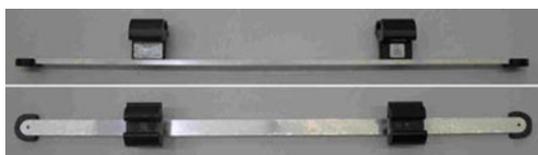
The anesthesia screen holder is plugged and locked on the round post clamp.



Adapter Rail 14.3

The adapter rail is mounted in front of the removable rails (sleeve). The adapter rail is used to mount the tableside user interfaces on the trunk area of the table.

The adapter rail is clamped on the sleeve. Please locate the indicator marks on the sleeve to position the adapter rail properly.



Head Widener 14.3

The Head Widener with Pad/Cushion is mounted on the narrow portion of the table top at the head end of the table. It is used for positioning the patient's head, especially when the patient is under anesthesia.

Place the Head Widener by sliding between the mattress and the table tray.



It is not compatible with the head holder and table head extender.

Width Extender 14.3

The Width Extender with pad/cushion is mounted on the removable rails (sleeve). It's used to extend the width of table top for larger patients.

The Width Extender is clipped on the sleeve on both sides of the table.



Universal Clamp 14.3

The universal clamp is used to mount the round post as well as blade / rectangular posts on rails of removable rails (sleeve) or rail extender.

The Universal clamp can be slide on the table side along the removable rails or the rail extender.



Patient Restraint Strap 14.3

Straps with cushion immobilize the patient's anatomy on the table (ex: abdomen, legs, feet) and reduce the risk of patient falling or rolling sideways.

The patient restraint strap is clamped on the removable rails (sleeve).



12.4.4 Tableside Cable Holder

The cable holder will be effective only when the sheath is properly installed, see [12.4.4.1.3 How to Remove and Install the Sheath on page 425](#) for Innova^{IQ} Table or [12.4.4.2.3 How to Remove and Install the Sheath on page 430](#) for Omega Table.

WARNING



DO NOT LEAVE ANY TSUI OR GROUNDING CABLES OUTSIDE THE SHEATH WHEN IT IS IN USE.

12.4.4.1 Cable Holder on Innova^{IQ} Table

The cable holder for the Innova^{IQ} Table encloses and guides the Table Side User Interface (TSUI) cables during the table movements and thereby protects the cables from entangling and getting cut during table movements.

- The sheath can be moved from one side of the table to the other without opening it.
- It can be opened to selectively add or remove cables.
- It can be removed for cleaning.

WARNING



DO NOT USE THE GUIDE ROD TO ATTACH DEVICES OTHER THAN THE CABLE SHEATH. DO NOT USE THE GUIDE ROD TO ATTACH CABLES WITHOUT USING THE SHEATH.

WARNING



MAKE SURE NO OBJECT LIES UNDER THE TABLE, WHICH THE CABLES COULD GET CAUGHT INTO.

The following TSUI cables shall always be routed through the Cable Holder when installed on the table rail.

- Control Panel
- Table Panning Device (TPD)
- Touch Panel

12.4.4.1.1 How to move controls to the other side of the table

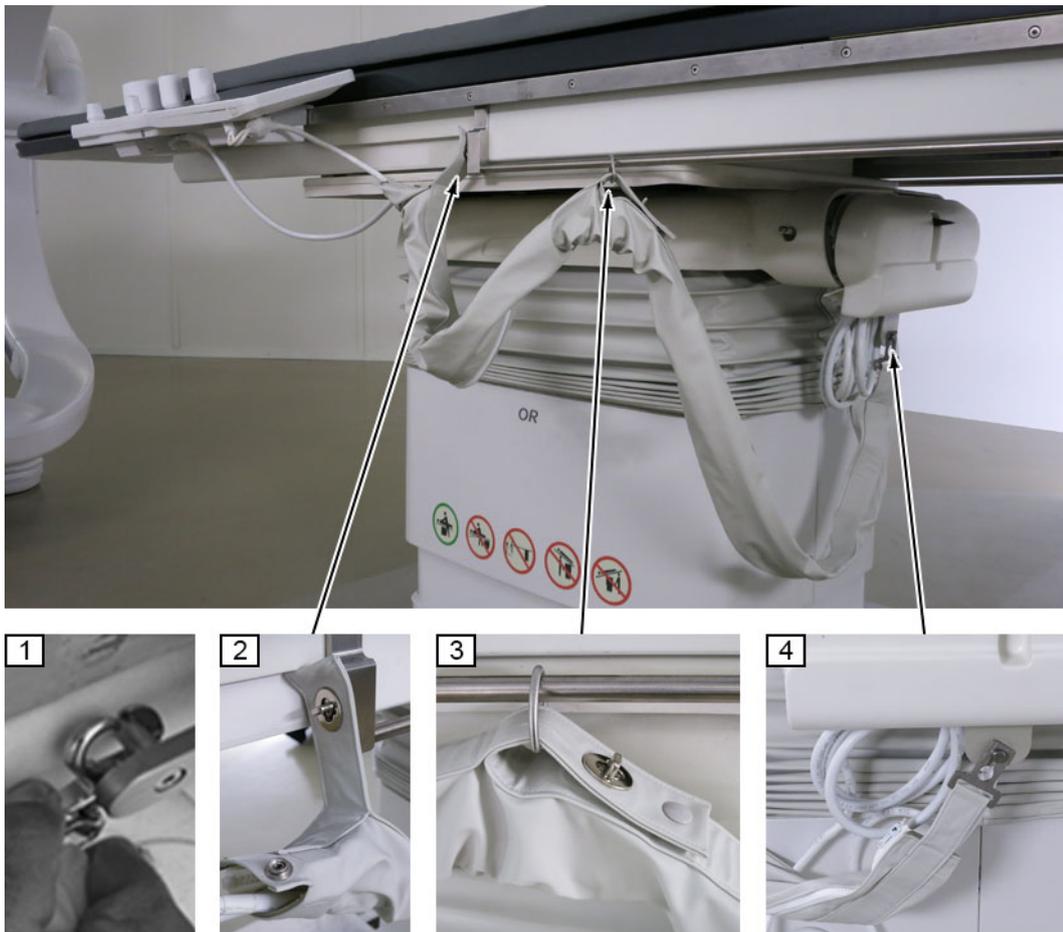
- Position the table top towards the head.
- Detach the sheaths on both sides.
- Remove the devices from the rail and keep them over the top of the table.
- Fix the devices onto the other side rail.
- Attach the sheaths on both sides.

12.4.4.1.2 How to Add/Remove Cables - For Moving Specific controls

- Detach the sheath on both sides.
- Unzip the sheath, remove the cables of the controls, which need to be swapped and zip up the sheath back on.
- Remove the devices from the rail and move them to the other side.
- Unzip the other sheath and add the cables and zip up the sheath back on.
- Attach the sheaths on both sides of the table.

12.4.4.1.3 How to Remove and Install the Sheath

Figure 12-13 Removing the Sheath



NOTE

- The basic configuration has [2], [3] and [4].
- [1], applicable only with the adapter rail option and extension sheath.

Detaching

- Optionally when there is an extension sheath, unhook [1].
- Detach the front portion of sheath from the turn button fastener [2].
- Detach the middle portion of sheath from the sliding ring [3].
- Detach the rear portion of the sheath from behind the table foot [4].

Attaching

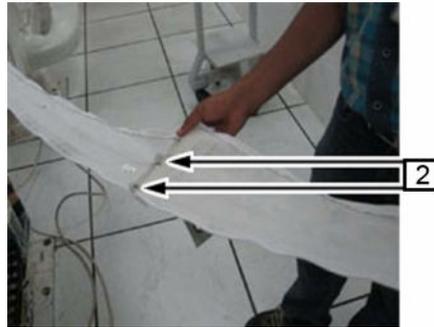
To install it attach it first to the shoulder screw at the back of the table [4], sliding ring [3], and finally the turn button fastener on the other side [2]. Optionally when there is an extension sheath, attach the hook joint to the first spacer of accessory rail [1].

12.4.4.1.4 How to Place Cables In and Out of the Sheath

- Once the sheath is detached, open the zipper fully to release the sheath from the cables.
- To install the sheath, insert all the cables back into the sheath and close the zipper.

**NOTE**

- Optional configuration with extension sheath
There are two sheaths connected by two flap buttons [2].

**NOTE**

- In case the two sheaths are separated, connect them with the two flap buttons.



12.4.4.1.5 How to Release the Cable Loops

Release the TSUI cable loop by releasing the cable tie.



12.4.4.1.6 How to Loop the Extra Cable Length

Loop the excess cable length, which comes outside the sheath, individually, using the cable tie.

12.4.4.2 Cable Holder on Omega Table

The cable holder for the Omega Table encloses and guides the Table Side User Interface (TSUI) cables during the table movements and thereby protects the cables from entangling and getting cut during table movements.

- The cables in the center sheath divide to left and right sides rails accessories.
- It can be opened to selectively add or remove cables.

- It can be removed for cleaning.

WARNING



MAKE SURE NO OBJECT LIES UNDER THE TABLE, WHICH THE CABLES COULD GET CAUGHT INTO.

The following TSUI cables shall always be routed through the Cable Holder when installed on the table rail.

- Control Panel
- Table Panning Device (TPD)
- Touch Panel
- Ground wire from table

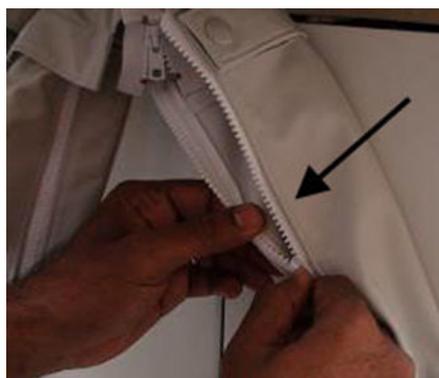
12.4.4.2.1 How to move controls to the other side of the table

When side sheath option is used, follow below instructions to swap TSUIs:

- Unhook the control device cable from rail hook.



- Remove the side sheath zipper; take only the desired cable out from the internal strap and button it back, then close the zipper.



- Move the control device to the other side.
- Route the cable in the other side sheath. Make sure it is going through the internal strap, and close the zipper.
- Hook the extra length cable in the rail hook to prevent sagging.

When Cable Holder mechanism is used, follow the below instructions:

- Unhook the control device cable from rail hook.

- Remove the cable with ferrule from the Cable Holder mechanism and move the control device to the other side.



- Tag the ferrule in the other side Cable Holder mechanism.
- Open the flap in the middle sheath, and move the cable to the other side; button the flap back.



12.4.4.2.2 How to Rotate the Table beyond 90 deg. when Cable Holder is in use

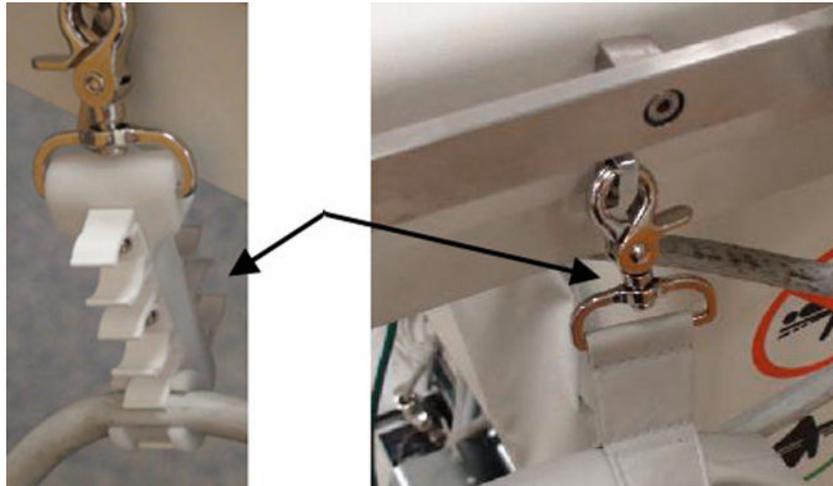


NOTE

The table shall be rotated up to 90 deg. without any change in setup.



- Remove all ferrules from both side Cable Holder (with Cable Holder option); or unhook from the rails the two hooks of the side sheath (with side sheath option).



- Remove the central hook of middle sheath from cover plate.

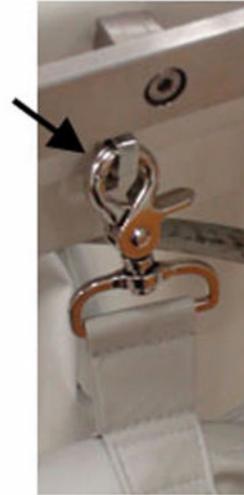


- When the table is rotated back to its home position, make sure that all ferrules and hooks are placed back into their original positions.

12.4.4.2.3 How to Remove and Install the Sheath

Detaching the Sheath

- Remove the side sheath zipper, unbutton the internal straps and take the cables out.
- Unhook the side sheath from the rail.

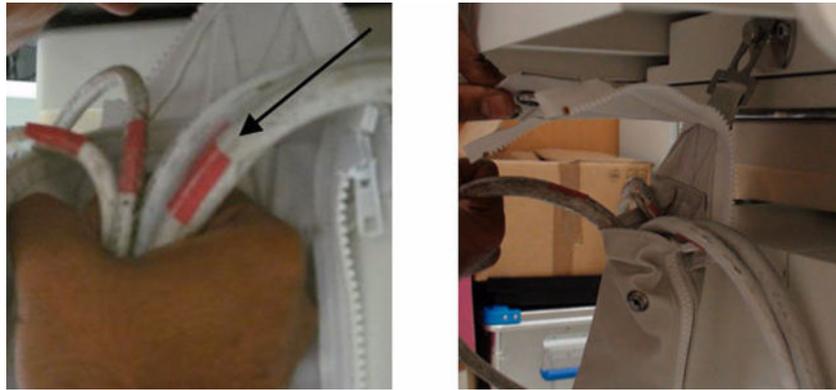


- Remove the center sheath and middle sheath zippers to remove the center sheath.
- Unhook the sheath metal holder from the two supports.



Attaching the Sheath

- Collect all the cable self-laminated label marks together, and make sure cables are twist-free.
- Keep label marks at the start of the center sheath, and close sheath zipper.



- Button the center sheath flap at the top.
- Follow cable looping procedure in case extra length cables are found outside the center sheath.

Side Sheath Attaching:

- Attach the side sheath zipper with the center sheath.



- Put the cables inside the internal straps, and close the side sheath zipper.
- Mount the side sheath hooks on the channel block of rail.

12.4.4.2.4 How to Loop the Extra Cable Length

Once the center sheath is installed, the extra length of cables coming out of it has to be managed through cable tie and holder.

- Use the cable tie to group cables on rest point bracket. Provide extra length of ~120 mm from cable tie to the center sheath end.



NOTE

In case of shortage of length of cables, adjust the cables in the center sheath to accommodate for extra length requirement

- Use cable tie and holder to carry the loop of cables inside the rest point board.



- Confirm all TSUI connections are good; Close the rest point board with cover.

12.4.5 IGS Control Center

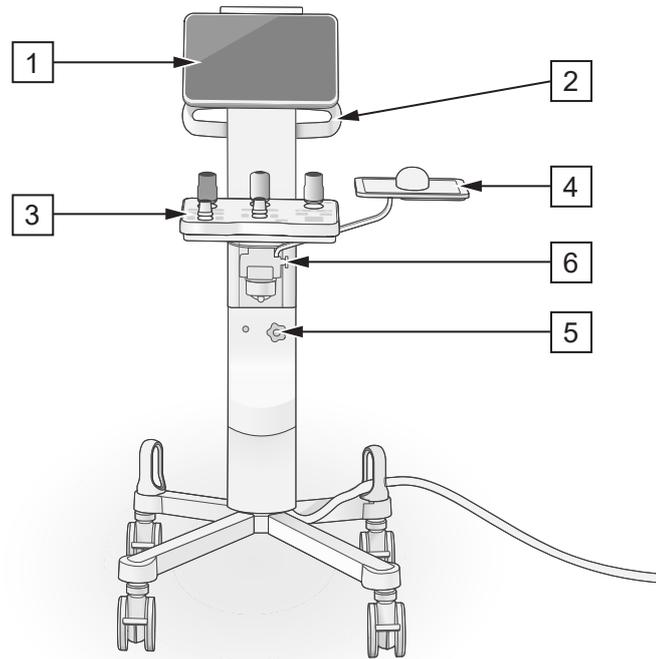
12.4.5.1 General Description

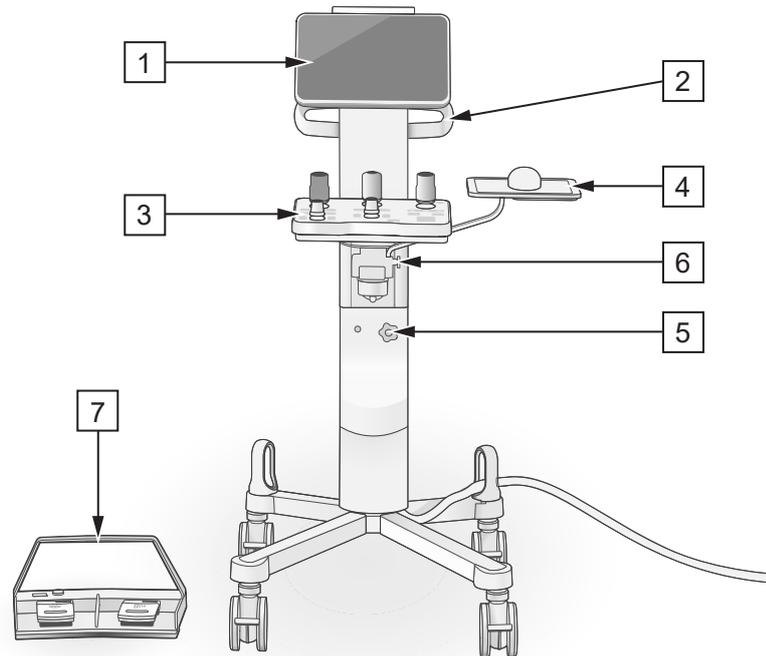
The IGS Control Center is an option only available for Innova^{IQ} Table and Magnus Maquet OR Table.

The IGS Control Center holds:

- The Touch Panel [1].
- The Control Panel [3].
- The Mouse Tray (option) [4].
- The footswitch (only with the Magnus Maquet OR Table) [7].

Allia IGS 5





The Mouse Tray **[4]** can be placed on either side of the IGS Control Center. To change its position, turn the knob **[6]** at its base to release the Mouse Tray, place it on the desired side and tighten the knob.

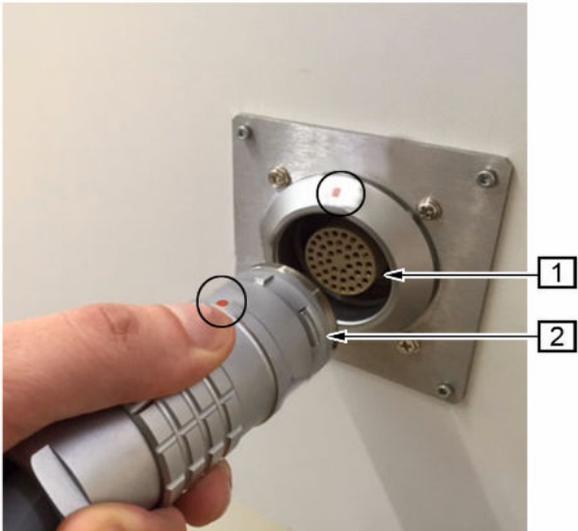
The user interface position can be adjusted in height using the locking knob **[5]** and the handle **[2]** and it can be adjusted in rotation.

The handle **[2]** allows moving the IGS Control Center in any direction. Four brakes, located on the wheels, can be used to immobilize the IGS Control Center when needed.

12.4.5.2 Environmental working conditions

The IGS Control Center is equipped with only one cable which can be plugged/unplugged on i-points. The cable has a total length of 9 m (7.5 m needed) that allows the IGS Control Center to be positioned around the table at a distance of 2 to 3 m.

To plug the cable on the i-point:

	Item	Description
	[1]	i-point wall socket
	[2]	cable plug

- Position the connector by aligning the red dots.
- Push the connector.

To unplug the cable from the i-point:



- Hold the ring.
- Pull the connector.

WARNING

BEFORE USING THE IGS CONTROL CENTER, CHECK THAT THE CABLE POSITIONING ON THE FLOOR WILL NOT INTERFERE WITH THE WORKFLOW DURING THE PROCEDURE. BE AWARE THAT THE CABLE IS NOT STRETCHED TO ITS MAXIMUM LENGTH.

Always ensure, before using the IGS Control Center, that Live and Reference screens are visible from the chosen working position.

Cable Management

Place the margin cable along a free wall. To move the IGS Control Center in the room, move the cable by pulling it or moving it with the feet on the ground, to prevent the cable to buckle on the ground.

Cable Cleaning

Clean cable with disinfecting wipes.

12.4.5.3 How to move the IGS Control Center

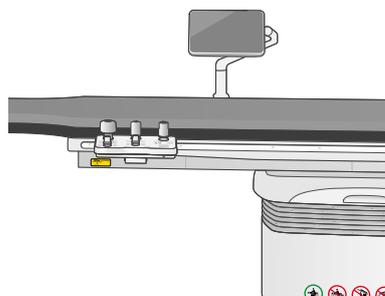
Release first wheel brakes by lifting up the brake command. Then use the handle to move the IGS Control Center in any direction.

When the IGS Control Center is positioned at the proper location, push down the brake command located in front of each of the wheels to immobilize the IGS Control Center.

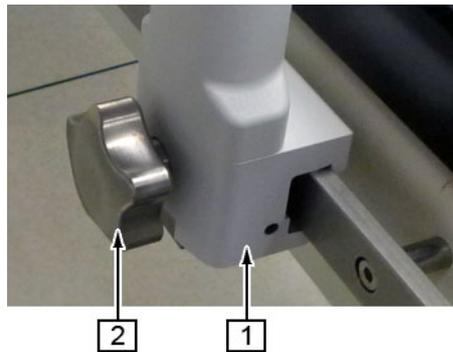
	Item	Description
	[1]	Brake released
	[2]	Brake engaged

12.4.6 Touch Panel Arm (Option)

The Touch Panel Arm allows to position the Touch Panel on the table.



It can be positioned anywhere on the table side rails. For fixation, use the clamp [1], then tighten the knob [2]. Once the arm is secured on the rail, use the arm rotations points to position the Touch Panel as desired.

**NOTE**

The arm is NOT taken into account in the anti-collision SW and the user needs to be careful to avoid collisions with the screen(s) and the system. Since the arm is attached to the table, it will move with it during the exam. It is best to position it out of the way before the exam starts and before the draping.

12.5 Collision management

**WARNING**

THE COLLISION SENSORS ARE NOT INTENDED TO BE A SUBSTITUTE FOR CAREFUL EQUIPMENT OPERATION. WHEN POSITIONING THE EQUIPMENT, BE SURE THE PATH IS CLEARED BEFORE STARTING A MOTION, CAREFULLY OBSERVE THE MOVING PARTS, AND STOP BEFORE MAKING ANY CONTACT. THE SENSORS ARE PROVIDED FOR ADDED PROTECTION IN CASE OF INADVERTENT CONTACT, AND ARE NOT TO BE RELIED ON AS THE USUAL MEANS FOR STOPPING. IMPROPER EQUIPMENT POSITIONING COULD RESULT IN SERIOUS INJURY OR EQUIPMENT DAMAGE.

**NOTE**

For system behavior in Standalone Mode with Magnus Maquet OR Table, refer to [12.1.1.4 Table Standalone Mode \(only for IGS 7 OR\) on page 395](#).

The anticollision system is described in chapter [3.6.6 System Collision on page 59](#).

(For Allia IGS 7 and Allia IGS 7 OR) Head Holder accessories have a pre-defined anticollision model, whereas the skull clamp needs to go through an optimization step.

Skull Clamp collision avoidance with Magnus Maquet OR Table

When using the skull clamp, the operator will be required to optimize the anti-collision software by the guided workflow. The purpose of this optimization is to adjust the size of the collision protection virtual volume on the patient head side. The anti-collision software will alert the operator when moving the gantry in close proximity to this volume and assist in avoiding collision between patient's head/skull clamp and any part of the system. However, as stated above, the collision sensors and the anti-collision software are not intended to be a substitute for careful equipment operation. It is the operator's responsibility to define the clearance between patient and/or skull clamp and the gantry parts during the learning phase.

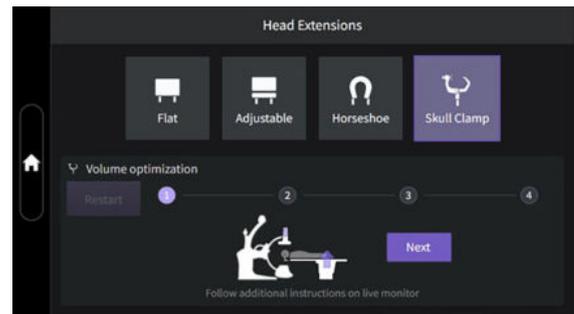
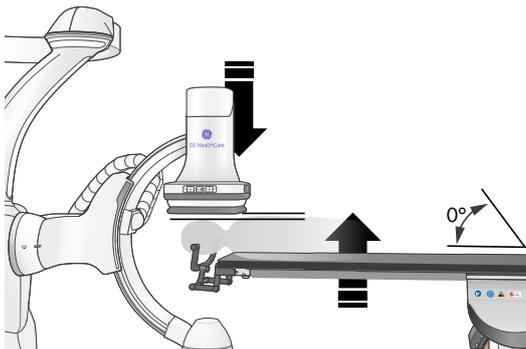
**NOTE**

Please ensure that this optimization is performed for each new patient or procedure, before patient draping.

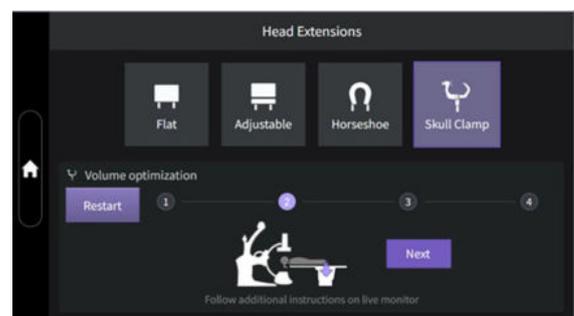
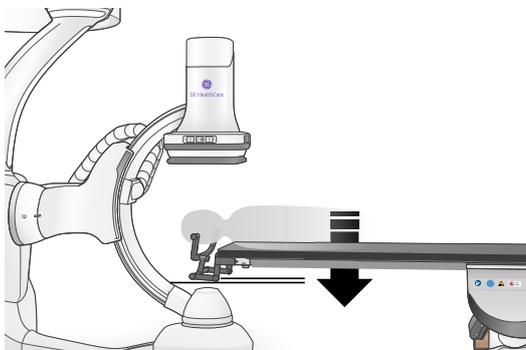
Do not move patient's head or skull clamp elements after the start of the process or after the optimization is validated, otherwise you will need to start the model optimization workflow again.

Until the end of this workflow, the anti-collision software is not yet defined and a collision with patients head or skull clamp can occur. You need to proceed with care when moving the table or the gantry.

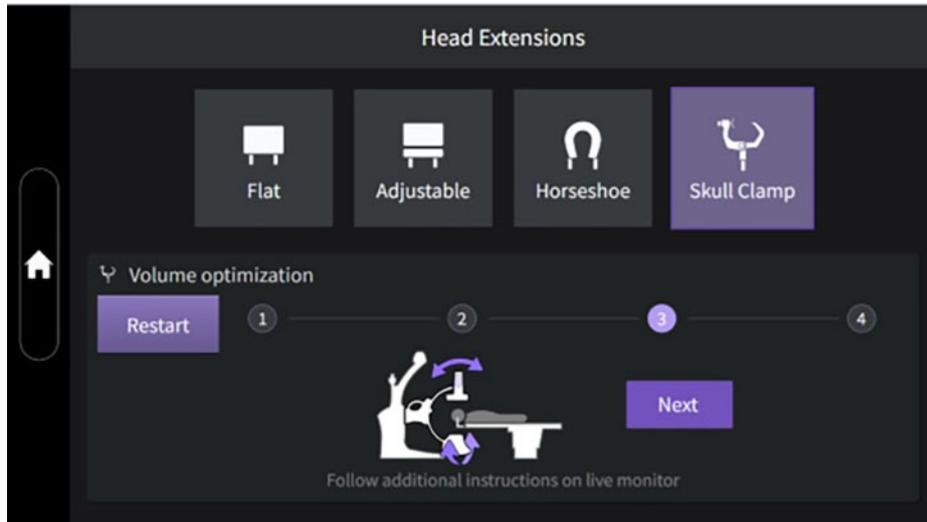
- Place the patient's head in the skull clamp, prior to draping.
- Select the skull clamp on the Touch Panel Head Extensions application: the skull clamp icon starts blinking on the Live monitor to indicate that the volume optimization phase is in progress.
- Carefully move the gantry to PA position (0° CRA-CAU, 0° RAO-LAO).
- Position the skull clamp above the X-Ray tube.
- Move the detector down and/or table up so that the skull clamp almost touches the detector. Avoid collision. Do not tilt. When the position is reached, press the **Next** button in the Head Extensions application of the Touch Panel.



- Move the table down so that the skull clamp almost touches the X-Ray tube. If needed, use the table tilt feature to get as close as possible. Avoid collision. When the position is reached, press the **Next** button in the Head Extensions application of the Touch Panel.



- Check all anticipated geometric conditions (gantry and table) needed for your procedure. You can run a 3D Spin Test to check that 3D will be available during the clinical procedure. When the positions are checked, press the **Next** button in the Head Extensions application of the Touch Panel to finish the optimization phase.

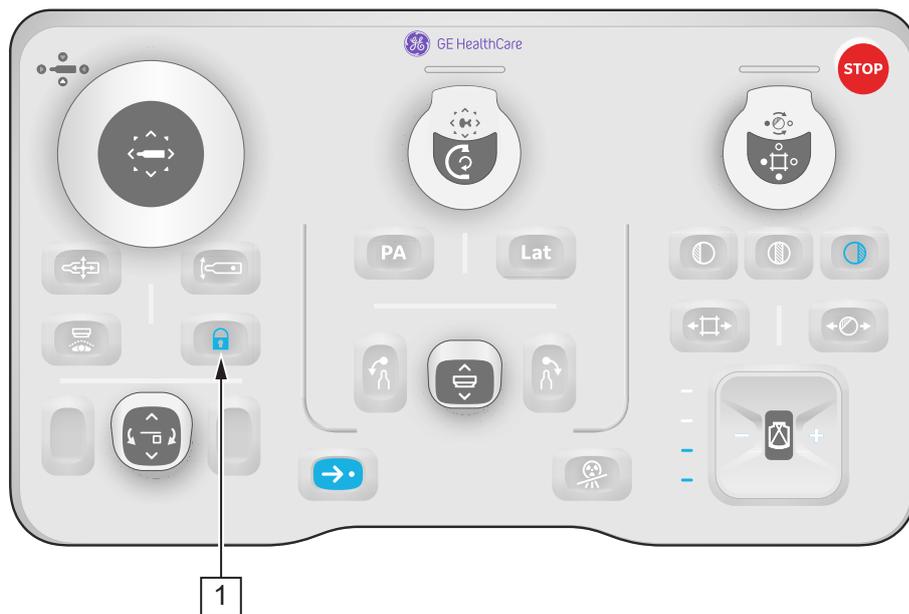


If you cannot reach the gantry positions, you must restart after changing the patient’s head/skull clamp position, by selecting the **Restart** button in the Head Extensions application of the Touch Panel.

Anticollision software failure - Degraded Mode

In case of failure of the anticollision software, all table and gantry motions are stopped. In this situation, collision with patient can occur: the motions are available at low speed and avoiding collision relies solely on the user. You will need to proceed with care when moving the table or the gantry.

-  **NOTE** When using the skull clamp, all table and gantry motions will be disabled. Press the **Motion Lock** blinking button [1] on the Control Panel to activate motion at low speed and move the table or the gantry with extreme care to avoid collision.



Patient - image detector anticollision

Anti-collision software and sensors are provided for patient safety. The collision sensor pads surrounding the Image Receptor are pressure sensitive. The Image Receptor sensor has two levels of sensing. Should a collision occur, the pressure that can be applied is no more than 70 N.

Once a collision is detected, the motion stops and motorized commands are discarded until the motion control command has been released. Clear the collision by:

- Activating the gantry joystick capacitive enable button. In this case, the gantry reverses the motion that preceded the collision.
- Moving the detector.
- Moving the table.

If the pressure increases while trying to exit the collision, the movements will stop, the gantry will be locked. In this case, clear the collision by:

- Moving the detector using the Emergency backout button (see [12.1.6 Direct Access Panel on page 409](#)).
- Moving the table.

Tube - table top anticollision

The tube cover is equipped with a contact sensitive device to protect the system in case of tube against table top collision. When a collision is detected, the system automatically stops the motion.

The motorized commands are disabled until the enable button has been released. Clear the collision by:

- Activating the gantry joystick enable. In this case, the C-arm will move away from the table top to try to clear the collision.
- Moving the table away (some directions will not be allowed to avoid increasing the pressure if the table top is causing the collision).

Tube and gantry bottom anti-collision on Allia IGS 7 and Allia IGS 7 OR systems

The lower part of the gantry and the tube side are equipped with contact sensitive devices to protect the people and objects in the exam room in case of collision. When a collision is detected, the system automatically stops the motion.

Once the collision is detected, the motorized commands are disabled until the enable has been released. Clear the collision by:

- Removing the contact with the person or object with which the collision occurred.
- Activating the gantry joystick enable. In this case, the gantry reverses the motion that preceded the collision.

Mast anticollision on Allia IGS 7 and Allia IGS 7 OR systems

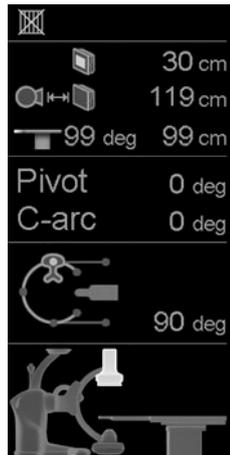
The top of the gantry mast is equipped with a contact sensitive device to protect the system in case of collision with ceiling-mounted devices.

Once the collision is detected, the motorized commands are disabled until the enable button has been released. Clear the collision by removing the contact between the collision sensor and the incriminated object.

Collision detection display and sound

The system automatically detects when parts of the system are close to each other or close to the patient. The corresponding parts of the gantry on the live display will be highlighted. An audible sound will be emitted.

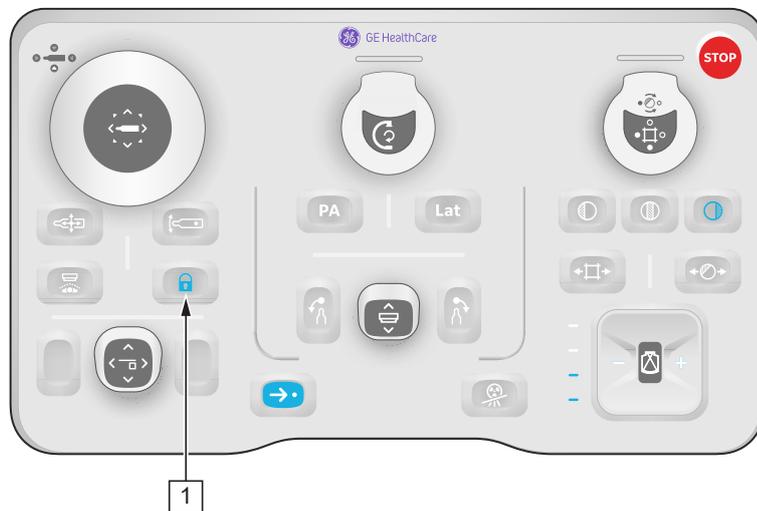
If a collision is detected by a sensor, the corresponding parts of the gantry on the live display will also flash. An audible sound is emitted.

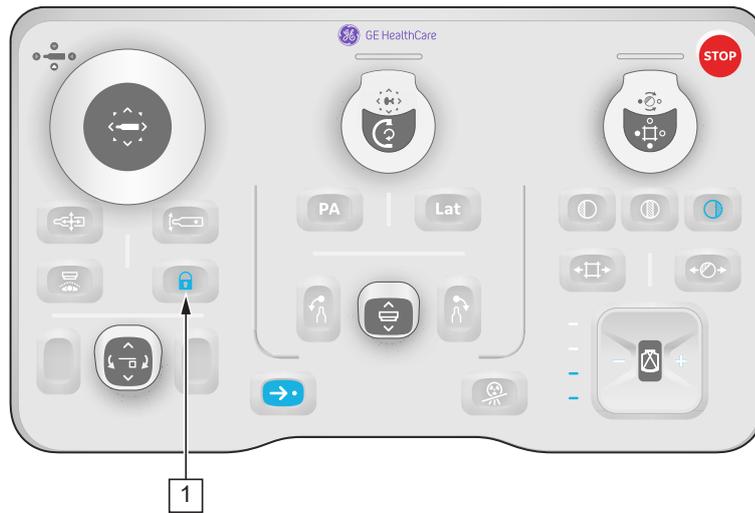


Collision Clearance

There are some situations where all table and gantry motions will be disabled. In this case, the user is required to press the **Motion Lock** blinking button [1] on the Control Panel to activate the motions at low speed.

In these situation, the anti-collision software is not functional. Avoiding collision relies solely on the user. Move the table or the gantry with extreme care in order to clear collision.





12.6 Auto Positioning

Auto Positioning Control

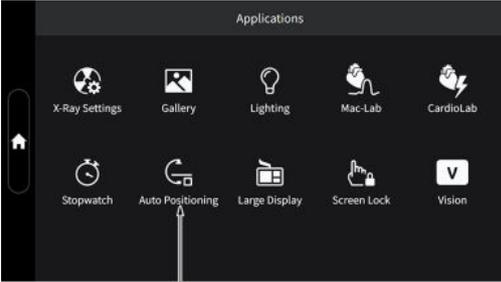
The Auto Positioning control allows storing and recalling gantry and/or table positions.



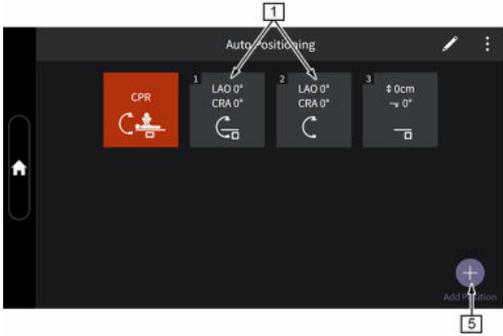
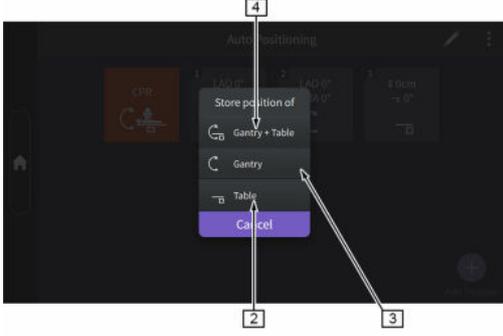
NOTE

Storage and Recall table positions are not available with Omega table and Magnus Maquet OR universal table top. Only Storage and Recall gantry positions are available.

The system can store up to 49 positions for each profile.

Applicability	User Interface	Item	Description
<p>Allia IGS 5</p>  <p>Allia IGS 7 Allia IGS 7 OR</p> 	<p>Figure 12-14 Image of Application menu</p> 	<p>[1]</p>	<p>Auto Positioning Application</p>

Auto Positioner Selector

Applicability	User Interface	Item	Description
<p>Allia IGS 5</p>  <p>Allia IGS 7 Allia IGS 7 OR</p> 	<p>Figure 12-15 Image of Auto Positioning page</p> <p style="text-align: center; color: red; font-weight: bold;">2.5</p> 	[1]	Position thumbnails to recall position
		[5]	Store Gantry, or Table, or Gantry and Table Position
	<p>Figure 12-16 (For InnovalQ Table) Image of Stored position</p> 	[2]	(For InnovalQ Table) Memorized Table position
		[3]	Memorized Gantry position
		[4]	(For InnovalQ Table) Memorized Gantry and Table position

How to store a position

To store a position:

- Move the gantry and/or table to the desired position.
- Using the Auto Positioning Application on the Touch Panel ([1], Figure 12-15 Image of Auto Positioning page on page 443), select add a position using the + button ([5], Figure 12-15 Image of Auto Positioning page on page 443).
- Press the **Gantry** button ([3], Figure 12-16 (For InnovalQ Table) Image of Stored position on page 443) to memorize the gantry position only.
- Press the **Gantry + Table** button ([4], Figure 12-16 (For InnovalQ Table) Image of Stored position on page 443) to memorize gantry and table position.
- Press on the **Table** button ([2], Figure 12-16 (For InnovalQ Table) Image of Stored position on page 443) to memorize the table position only.

A thumbnail is added to the end of the list showing the newly memorized position.



NOTE

The position's thumbnail remains selected for 1 min.

How to recall a position

To recall a position:

- Using the Auto Positioning Application ([1], [Figure 12-15 Image of Auto Positioning page on page 443](#)), select a position.
- The guiding popup is displayed.
- The gantry, or table, or gantry + table position previously stored is displayed in reverse video on the live display.
- Hold the **Move** button from the Control Panel down to move the system to the stored position. At the end of the motion, the information `Position Reached` appears in the lower left corner of the live display.



NOTE

The Edit mode is available either through a long press on a position thumbnail or after selecting the edit button . In edit mode the user can remove a position or move it in the list by drag and drop.



NOTE

In some cases, the system is not able to reach the stored position. The message `Position not reached` is displayed in the lower left corner of the live display. This occurs when there is a collision on the trajectory between the current position and the recalled position. Try to move to a position closer to the recalled position and try again to use the auto positioner.



NOTE

For system with Magnus Maquet OR table, ensure that the patient is correctly maintained, especially for trendelenberg/ reverse trendelenberg tilted and lateral tilted positions. Refer to table manufacturer operating instructions.

WARNING

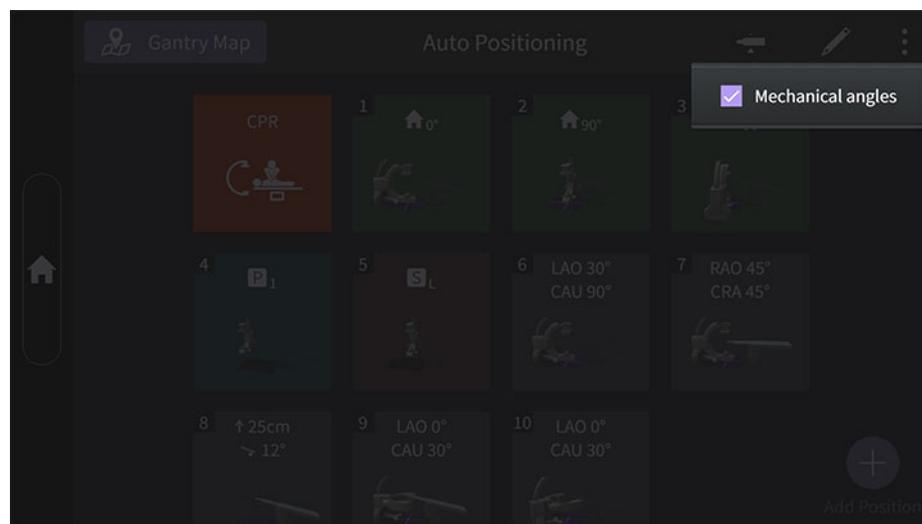
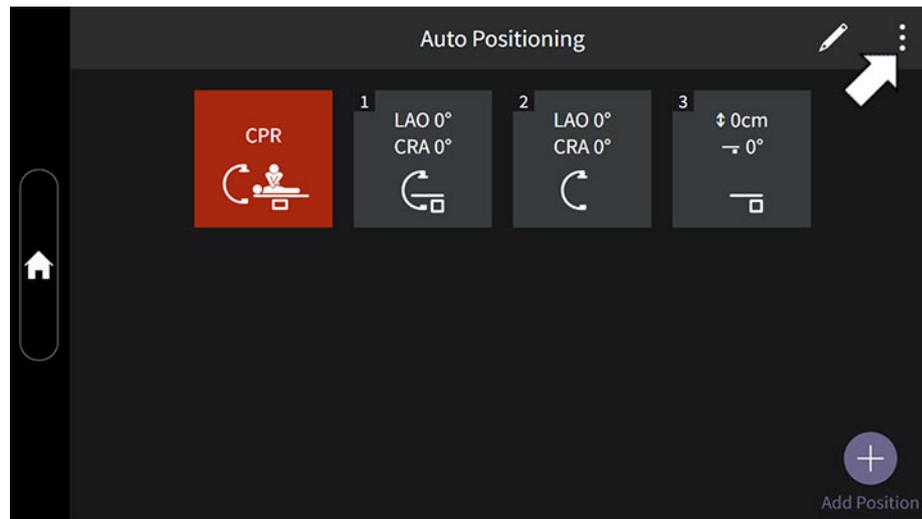


THE CONTROL OPERATOR IS RESPONSIBLE FOR THE SAFETY OF THOSE NEAR THE MOVING EQUIPMENT. WHEN POSITIONING THE EQUIPMENT USING THE AUTO POSITIONING FUNCTION, CONTINUOUSLY OBSERVE ALL MOVING EQUIPMENT, AND RELEASE THE COMMAND BEFORE A COLLISION CAN OCCUR. THE SENSORS ARE PROVIDED FOR ADDED PROTECTION IN CASE OF INADVERTENT CONTACT AND ARE NOT TO BE RELIED ON AS A NORMAL MEANS FOR STOPPING MOVEMENT. IMPROPER USE OF THE EQUIPMENT WHILE USING THE AUTO POSITIONING FUNCTION COULD RESULT IN SERIOUS INJURY, RISK OF PATIENT FALL OR EQUIPMENT DAMAGE.

Anatomical/Mechanical Mode Control

This selection affects the behavior of the positioning joysticks. In Mechanical mode, each axis of the gantry is controlled independently. In Anatomical mode, the motion of the axes is combined in order to allow motion with respect to the patient.

The toggle between anatomical/mechanical mode is in the **AutoPositioning** application of the Touch Panel.



12.7 2D Send Angles (Gantry, Table, Gantry+Table)

2.6

The 2D Send Angles function allows positioning the gantry and the SID back to where an image was previously acquired.

With the Innova^{IQ} Table and the Magnus Maquet OR flat table top, it is possible to reposition the table or both the table and gantry. First, select the image of interest. The image you can send the angles from can be:

- A photo under review on the reference display.
- A sequence under review (Pause review first when using the DL remote control or the DL keypad).
- The 1st frame of a sequence or a photo under review on the In-room Browser with the DL remote control and the Smart Nav.

Then, send the angles of the selected image to the Auto Positioner, by either:

- Pressing the **Store Angle** button on the DL Remote Control (see [10.7.4 DL Remote Control on page 301](#)).
- Pressing the **Send Angles** button on the Review widget or the sequence page of the Touch Panel (see [10.7.3 Touch Panel on page 297](#)).

2D Send Angles

After selecting the **Send Angles** button on the Touch Panel a popup is displayed.

The **Move** button on the Control Panel is blinking.

In order to reposition:

- Both the gantry and the table, select the **Gantry+Table** button of the **Send Angles** popup (refer to [Figure 12-19 Touch Panel - Send Angles on page 448](#)). The **Move** button starts blinking as soon as the popup is displayed. Both the angles and table information get highlighted on the live display. With the Innova^{IQ} Table and the Magnus Maquet OR flat table top, this is selected by default.



NOTE

Gantry+Table Send Angles repositions all axis of the Gantry, the SID and the Longitudinal, Lateral, Height and Tilt axis of the table (and lateral tilt axis for Magnus Maquet OR flat table top).

- The gantry, select the **Gantry** button of the **Send Angles** popup (refer to [Figure 12-19 Touch Panel - Send Angles on page 448](#)). The **Move** button starts blinking. The angles get highlighted on the live display. With Omega Table and the Magnus Maquet OR universal table top, this is automatically selected.



NOTE

Gantry Send Angles repositions all axis of the Gantry, including the SID. It considers the current table tilt position to reach the same incidence as the reviewed image.

- The table, select the **Table** button of the **Send Angles** popup (refer to [Figure 12-19 Touch Panel - Send Angles on page 448](#)). The **Move** button starts blinking. The table information gets highlighted on the live display.



NOTE

Table Send Angles repositions the Longitudinal, Lateral, Height and Tilt axis of the table (and lateral tilt axis for Magnus Maquet OR flat table top). SID automatically goes to max SID in order to avoid collision. In case patient contouring is active, SID is adjusted to the patient position.

Finally, hold the **Move** button down to move to the position where an image was previously acquired. When the gantry, table, or gantry+table reach the final position, the message POSITION REACHED appears in the lower left corner of the live display.

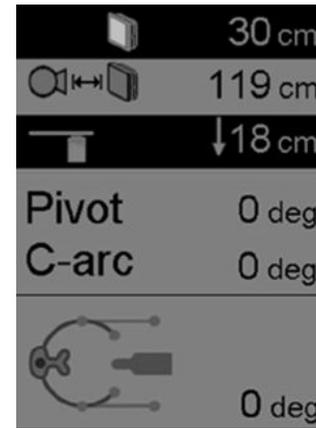
Figure 12-17 Angles displayed in anatomical mode



	30 cm
	118 cm
	↓ 16 cm
LAO	0 deg
CAU	0 deg
L	0 deg

Figure 12-18 Angles displayed in mechanical mode

	30 cm
	118 cm
	↓ 16 cm
Pivot	0 deg
C-arc	0 deg
L	0 deg



The angles sent are displayed and highlighted on the live display. They are displayed in the same display mode (anatomical / mechanical) as the current selection. See [Figure 12-17 Angles displayed in anatomical mode on page 446](#) and [Figure 12-18 Angles displayed in mechanical mode on page 446](#).

**NOTE**

(For Allia IGS 7 and Allia IGS 7 OR) If the photo is acquired when the system was on a parking trajectory only the table position is recalled.

**NOTE**

The Send Angles is cancelled in the following situations:

- 30 s time-out (no action during 30 s after the Send Angles request).
- Protocol or fluoro mode change.
- Patient position change or table tilt change (only for Gantry Send Angles).
- Auto Positioner new position selection.
- Profile change.

In that case, a message POSITION NOT REACHED appears in the lower left corner of the live display, the angles come back to normal display, and the popup is closed.

**NOTE**

The Send Angles request is not allowed under the following conditions:

- System is configured in Bolus mode, and the start position has been selected.
- System is configured in 3D CT or 3DStent mode and is ready for 3D acquisition (i.e. the test rotation is finished and the message Ready. Clear rotation area is displayed on the live display).
- System is configured in InnovaSpin™ mode and the gantry is moving
- Gantry or table are unable to reach the final position.
- Gantry is in degraded mode.
- **(For Allia IGS 7 and Allia IGS 7 OR)** The Gantry base is not at the same position the image was taken (Only true for parking trajectory).

**NOTE**

In InnovaSpin™ mode, the system will automatically exit from the InnovaSpin™ mode once the spin acquisition is finished, and the Dynamic or Chase mode will be displayed back on the reference display

Figure 12-19 Touch Panel - Send Angles

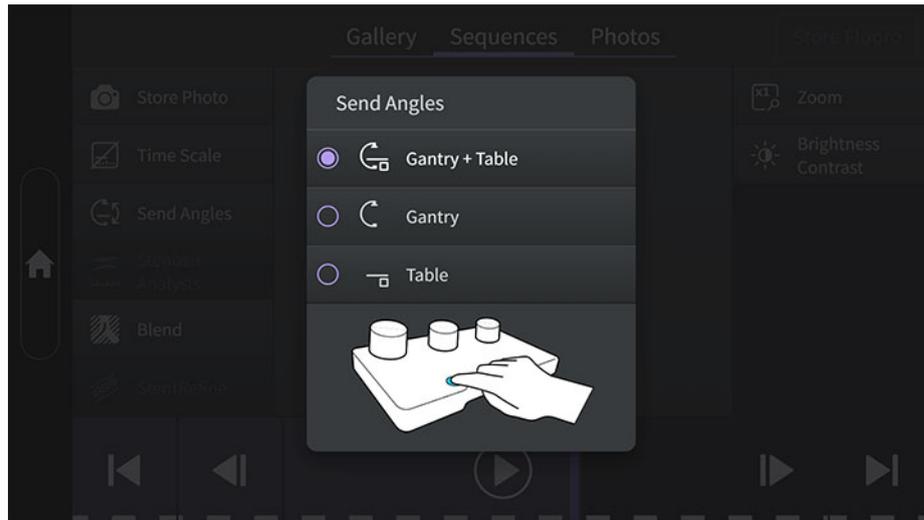


Figure 12-20 "Gantry" Send Angles is active

Figure 12-21 "Table" Send Angles is active

Figure 12-22 "Gantry+Table" Send Angles is active



	30 cm
	118 cm
	↓ 16 cm
LAO	0 deg
CAU	0 deg
L	0 deg

	30 cm
	119 cm
	1 deg ↓ 5 cm
LAO	0 deg
CRA	0 deg
L	0 deg

	30 cm
	119 cm
	1 deg ↓ 5 cm
LAO	0 deg
CRA	0 deg
L	0 deg



	30 cm
	119 cm
	↓ 18 cm
LAO	0 deg
CRA	0 deg
	0 deg

	30 cm
	119 cm
	1 deg ↓ 5 cm
LAO	0 deg
CRA	0 deg
	0 deg

	30 cm
	119 cm
	1 deg ↓ 5 cm
LAO	0 deg
CRA	0 deg
	0 deg



NOTE

In order to avoid collision, motion can be stopped by releasing the **Move** button. Move the system and re-start the motion by pressing the **Move** button again.

12.8 Skin Spacer

Figure 12-23 With Skin Spacer

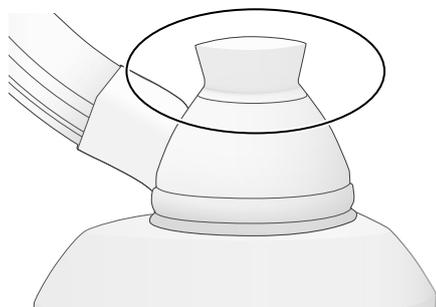
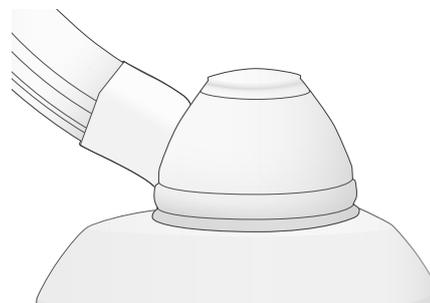


Figure 12-24 Without Skin Spacer



When the Skin Spacer is installed over the X-Ray Tube cover, particular attention must be taken when moving the table down, especially during patient loading/unloading phase.



NOTE

With the Skin Spacer installed, do not stop the table too close to the spacer (keep about 5 cm in between) when loading the patient on the table. Doing so will prevent the tabletop to collide with the Skin Spacer due to its flexibility.

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13 Alarm System

13.1 Alarm management

On IGS systems, an embedded alarm system informs operators that there is either a potential hazard or an actual hazard.

The alarm system is fully functional and operational after system is ready for use.

The alarm system indicates technical alarm condition with the display of an error message containing the level of priority.

The level of priority is indicated by the addition of "!" for Low priority, "!!" for Medium priority, "!!!" for High priority at the beginning of the error message.

- ! Low priority indicates that operator awareness is required.
- !! Medium priority indicates that prompt operator response is required.
- !!! High priority indicates that immediate operator response is required.

The alarm error message is always displayed on live displays in exam room and in control room.

If more than one alarm is active at one time, the alarm error messages are displayed successively with a 10 second duration.

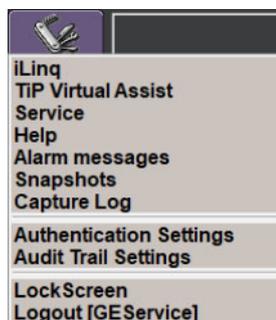
13.2 Alarm Message Format

Each alarm message is formatted on the following pattern:

[Index] [Priority + Risk] [Instruction] [Description]

Alarm in- dex	Alarm priority + Risk	Recommended instruction (named "Corrective action")	System impacted functionality
(2.7)	!! Patient fall risk.	Handle patient with care.	Gantry/Table lock failed.

The alarm index displayed at the end of the error message refers to the alarm description in this section of the User Manual and in the Alarm Messages window available from the Utilities key located on top of the DL Screen.



13.3 Alarm System Performances

The alarm management in the IGS system is implemented among the different components of the system.

The following table gives the maximum latency between the time an alarm condition is detected by the system and the time the alarm message is displayed on monitors.

IGS system functions	Nominal display latency	Maximum display latency
Gantry / Table motion	1 s	5 s
X-Ray / Auto-injection	1 s	3 s
Alarm system not functional	3 s	5 s

13.4 Degraded Mode of the Alarm Management

In case of communication problem between internal components of the system, only the functions related to the Gantry/Table motions remain available to the operator, Gantry/Table alarm are then not displayed.

When an internal communication problem is detected, the alarm message **!! Collision/patient fall risk. Alarm system failure. Move with care. (2.1)** is displayed on the DL screen and on the live & reference displays.

13.5 Alarm visual indicator on Allia IGS 7 and Allia IGS 7 OR systems

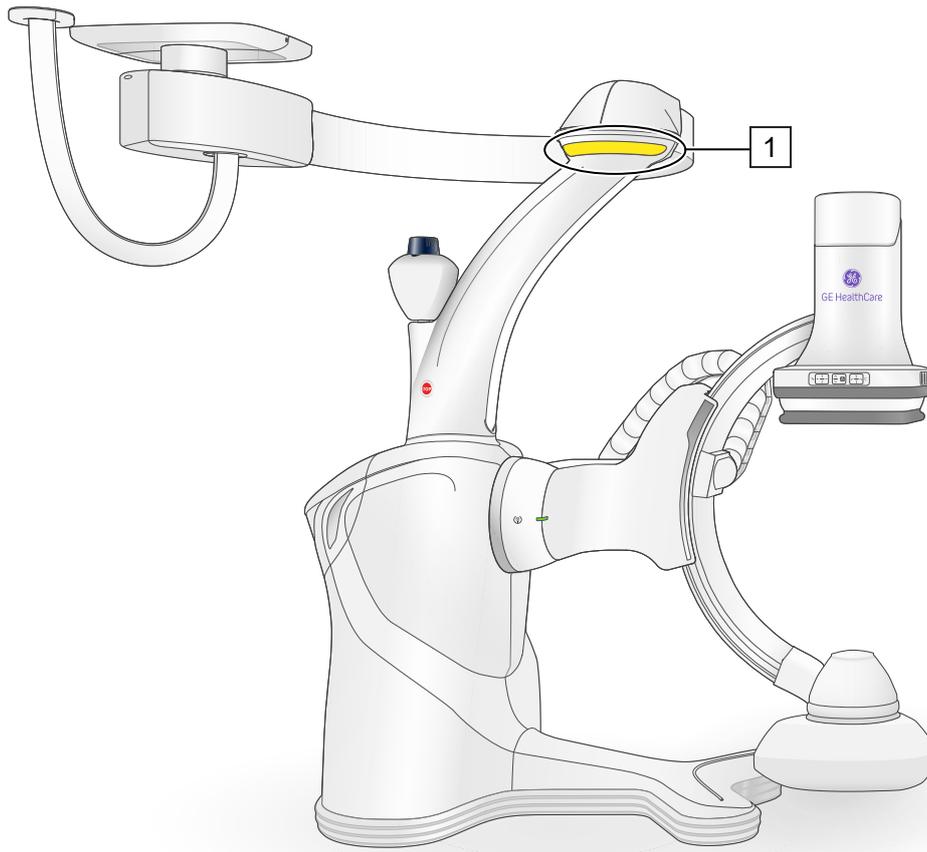
A visual indicator **[1]** indicates the presence of a potential or an actual mechanical hazard related to the motions of the AGV commanded from the handle located at the rear of the AGV.

This indicator is a light located on the mast of the AGV.

A flashing yellow light corresponds to a medium priority alarm.

An alarm error message is displayed simultaneously on the live displays in exam room and in control room and indicates the alarm condition.

When this indicator is active, stop the movements and check alarm message on the monitor. Follow the recommended corrective instructions linked to the alarm as described in [13.6 List of Alarm Messages on page 453](#). Use extreme care when positioning the equipment. Be sure the equipment path is clear before starting a movement. When positioning the equipment, carefully observe the moving parts, and stop the movement before making contact.



13.6 List of Alarm Messages

The following table gives the list of all alarm messages of the IGS systems along with their detailed description and recommended corrective instructions.

If alarm persists contact your Field Service Representative.

Index	Alarm message	Corrective actions	Description
3.1	!!! Collision risk. Protocol change failed. Check patient contouring.	Check InnovaSense patient contouring activation state. Reselect protocol. Reset system to recover.	Upon the selection of a protocol, InnovaSense patient contouring control error. Risk of collision between the detector and thin materials, e.g. needles. InnovaTrace™ sensors do not detect small invasive object.
3.2	!!! Risk of resuscitation delay. Auto CPR failure. Move manually.	Clear potential collision and reach CPR position manually.	A collision occurred during automatic CPR motion. The system cannot reach the CPR position by itself. Unknown gantry or table position. Risk of uncontrolled collision. Automatic CPR motion is disabled. A failure of one table axis prevents the table to reach the CPR position by itself.