

## 4.11 Dose Reduction: 7 easy steps to remember

1	Use the lowest acceptable level	<ul style="list-style-type: none"> <li>• Use LOW level only if Image Quality is adequate. Always adjust the level that provides the desired image quality level.</li> <li>• Use Dose limiter if Image Quality is adequate.</li> <li>• A low level and dose limiter state can be set up by default in Protocols (ask Applications Specialist).</li> </ul>
2	Use the lowest acceptable frame rates (example 15 fps vs. 30 fps)	<ul style="list-style-type: none"> <li>• Lower frame rate can further reduce the dose by around 50%.</li> <li>• Different default fps between Record and Fluoro can be stored in protocols.</li> </ul>
3	Minimize duration of X-Ray	<ul style="list-style-type: none"> <li>• Don't image longer than necessary in fluoro and record.</li> <li>• Avoid using one anatomical view for long periods of time/many runs.</li> <li>• Consider using InnovaSpin in lieu of prolonged imaging in one incidence.</li> </ul>
4	Detector close to patient	<ul style="list-style-type: none"> <li>• Bring the Detector as close as possible to the patient.</li> <li>• Can further reduce the dose by around 15%.</li> <li>• Use InnovaSense patient contouring if available.</li> </ul>
5	Highest table working height	<ul style="list-style-type: none"> <li>• Use the highest table working height acceptable.</li> <li>• Maximize X-Ray Tube to patient distance.</li> </ul>
6	Collimate	<ul style="list-style-type: none"> <li>• Always collimate to the anatomical area of interest.</li> <li>• Use the largest acceptable image detector Field of View, with collimation, in lieu of image magnification.</li> <li>• If image magnification is required, use the lowest acceptable dose rate.</li> </ul>
7	Monitor cumulative patient dose	<ul style="list-style-type: none"> <li>• Set thresholds of cumulative patient dose (Yellow/Orange/Red levels).</li> <li>• Keep track of cumulative dose display on monitor relative to these thresholds during the case.</li> </ul>

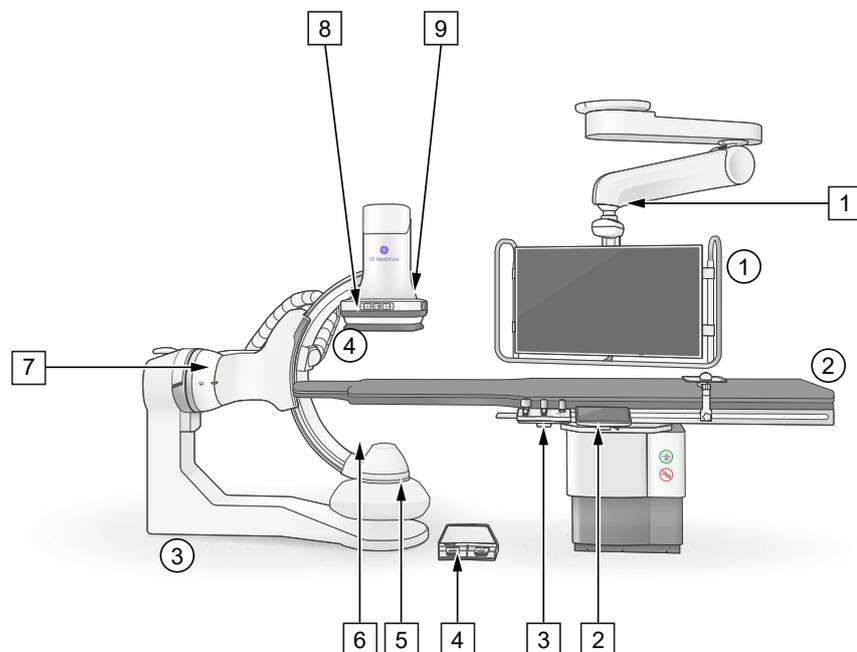
# 5 System Description

## 5.1 General Description

The IGS System incorporates GE's exclusive Revolution Solid-state Digital Detector to reliably provide consistently high imaging performance through the full range of angiography procedures. It is a fully integrated imaging system that meets all clinical needs for interventional and diagnostic angiography procedures with advanced image quality, innovative dose management and ease of positioning.

The system consists of the following components and sub-components:

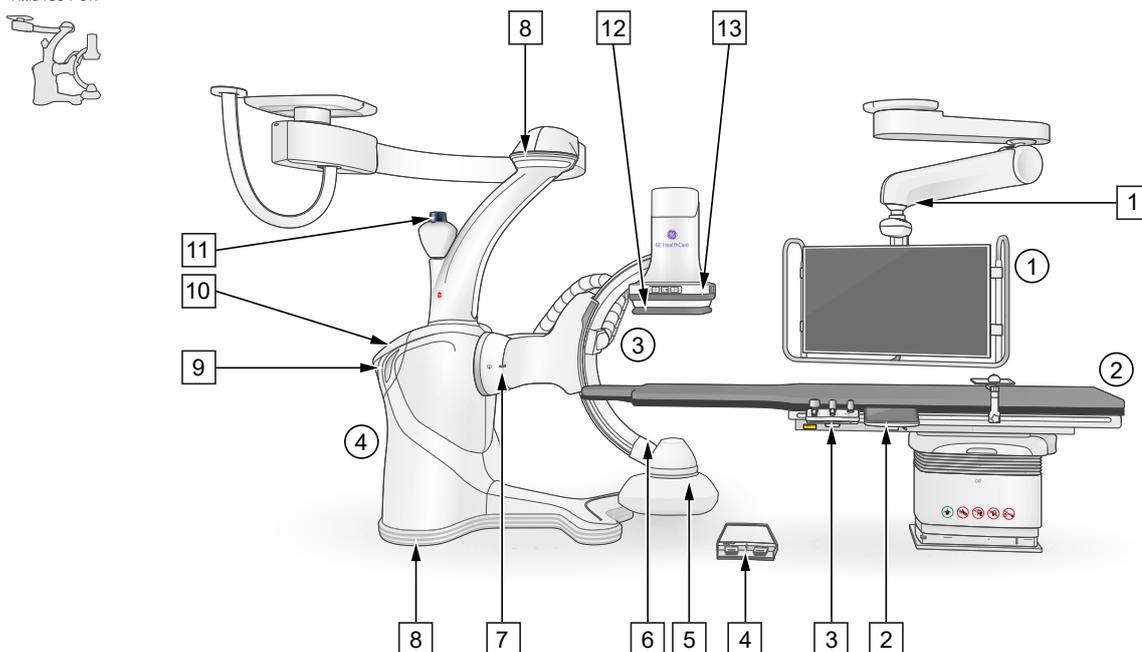
- **Gantry:**  
For more details on the Gantry, see [5.3.3 Gantry on page 150](#).
- **Table** with mattress and user interfaces.
- **Footswitch.**
- **Display Monitors with suspension arm.**  
For more details, see Chapter [Monitor Suspension on page 473](#)
- **Console:** the assembly located in the Control Room.  
For more details, refer to section [6.1 Console on page 157](#).
- **Cabinets** are located in the Technical Room.
- **Tube cooling unit and detector conditioner.**



Item	Description
①	<b>Monitors</b>

Item	Description
[1]	Monitors Suspension
②	<b>Table</b>
[2]	Touch Panel
[3]	Control Panel
[4]	Footswitch
③	<b>Gantry: L-Arm</b>
④	<b>Gantry: C-Arm</b>
[5]	X-Ray Tube
[6]	Collimator
[7]	'Ready for X-Ray' led (indicates when X-Rays are available)
[8]	Anti-scatter Grid
[9]	Digital Detector

Allia IGS 7  
Allia IGS 7 OR

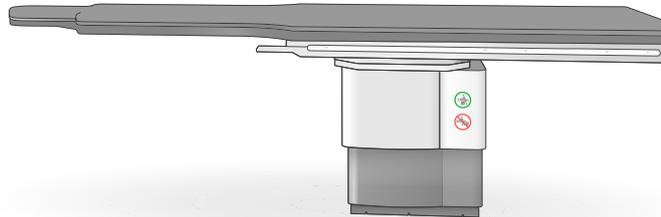


Item	Description
①	<b>Monitors</b>
[1]	Monitors Suspension
②	<b>Table</b>
[2]	Touch Panel
[3]	Control Panel

Item	Description
[4]	Footswitch
③	<b>Gantry: C-Arm</b>
[5]	X-Ray Tube
[6]	Collimator
[12]	Anti-scatter Grid
[13]	Digital Detector
④	<b>Gantry: AGV</b>
[7]	'Ready for X-Ray' led (indicates when X-Rays are available)
[8]	Anticollision sensor
[9]	AGV handle
[10]	AGV touch screen
[11]	Laser

## Omega Table

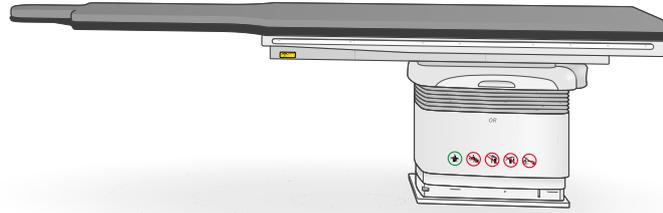
The Omega angiographic table features a 4-way floating table top with a compact fiber laminate structure. Available table: Cardiac table Omega IV and Angio table Omega V.



## Innova<sup>IQ</sup> Table

The Innova<sup>IQ</sup> angiographic table features full motorization, a 4-way panning assist table top movement and Trendelenburg/reverse-Trendelenburg tilt.

The Innova<sup>IQ</sup> table with OR branding is compliant with IEC 60601-2-46.



## Magnus Maquet OR Table

The Magnus Maquet OR Table in combination with the Allia IGS 7 OR System can be operated both in Integrated Mode (surgical configuration, X-Ray allowed) and in Standalone Mode (surgical configuration, no X-Ray allowed).

This table is a fully motorized operating table which features interchangeable table tops (flat or universal table top) and allows several positions: Trendelenburg, reverse-Trendelenburg and lateral tilt.



### NOTE

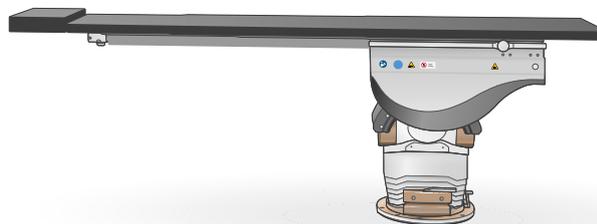
The system behavior in Standalone Mode (no X-Ray allowed) is described in the [12.1.1.4 Table Standalone Mode \(only for IGS 7 OR\) on page 395](#). The following sections describe the system behavior in an integrated configuration.



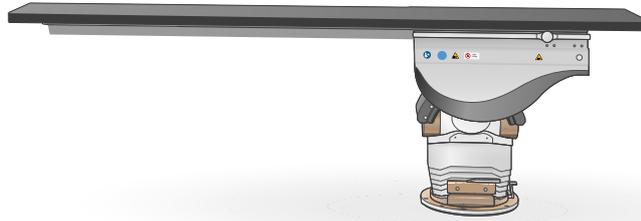
### NOTE

For a complete description of Magnus Maquet OR Table and its accessories, see the operating instructions provided with the table.

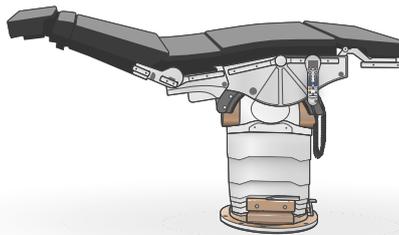
Magnus Maquet OR Table with flat tabletop reference 1180.16A2 or 1180.16F2:



Magnus Maquet OR Table with flat table top reference 1180.16A6 or 1180.16F6:



Magna Maquet OR Table with universal table top:



**Release software version**

Model Name	Release Software Version
Allia IGS 5	IGS5_5
Allia IGS 7	IGS7_7
Allia IGS 7 OR	IGS7_7

**5.2 System Components**

Availability of configurations may vary according to the country regulatory registration.

**5.2.1 Basic Components**

In the exam room

- Gantry. It includes the X-Ray Tube, the collimator and the digital detector.
- **Table with mattress included.** 7.9.1
- **(For System with InnovalQ Table) (For System with Omega Table)** Table accessories (Quick Strap, Clear-Vu Arm Support, IV pole & Mount...).

- Footswitch.
- **(For System with InnovalQ Table) (For System with Omega Table)** Table Side Controls: Control Panel, Touch Panel (on rail or with arm support), Table panning device.
- **(For System with Magnus Maquet OR Table)** Table accessories: refer to the table manufacturer documentation.
- **(For System with Magnus Maquet OR Table)** IGS Control Center (including Control Panel and Touch Panel).
- Image Display: In-room monitors.
- Monitor suspension.
- Buzzer kit.
- DL Remote Control (infrared transmitter and receiver).
- Anti-scatter Grid.
- **(For Allia IGS 7)** Surgical accessories.

**(For Allia IGS 7 and Allia IGS 7 OR) (For a country where Medical Device compliance with IEC60601-1 Edition 2 is needed:)**

The following components are mandatory components in OR configuration and optional in the interventional configuration: Surgical Accessories (Removable rails (1), Arm board with thick pad (also called armrest) (1) (\*), Round Post Clamp (\*), Anesthesia screen holder (1) (\*)).

(1) Available in US (9.52 x 28.5 mm / 0.38 x 1.13 in) and European (10 x 25 mm) standard sizes.

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

**(For Allia IGS 7 and Allia IGS 7 OR) (For a country where Medical Device compliance with IEC60601-1 Edition 3.0 or higher is needed:)**

The following components are mandatory components with Innoval<sup>IQ</sup> OR Table and optional with the Innoval<sup>IQ</sup> Table: Removable table rails - Available in US (9.52 x 28.5 mm / 0.38 x 1.13 in) and European (10 x 25 mm) standard sizes.

In control room

- Console (the assembly including DL screen, keyboard, mouse, handswitch and VCIM).
- Image Display: Control monitors.
- DL Keypad.

In technical room

- Cabinets: PDU and C-FRT.
- High-voltage generator in C-FRT Cabinet.
- Conditioner for Detector.
- Cooling unit for X-Ray Tube.
- One UPS (Mainstream or Fluoro).

## 5.2.2 Options

Availability of options may vary according to configuration and to the country regulatory registration.

### 5.2.2.1 Hardware options

**Table 5-1 Hardware options for IGS 520 Systems**

Table	Cardiac Table Omega IV
	Angio Table Omega V
	Innova <sup>IQ</sup> Table
Image monitor	Additional monitors
	Up to 3 Video connection points
Monitor suspension	Additional Monitor suspension
In control room	Second Footswitch

**Table 5-2 Hardware options for IGS 530 Systems**

Table	Angio Table Omega V
	Innova <sup>IQ</sup> Table
Image monitor	Additional monitors
	Up to 3 Video connection points
Monitor suspension	Additional Monitor suspension
In control room	Second Footswitch
	Bolus handswitch

**Table 5-3 Hardware options for IGS 730 Systems with Innova<sup>IQ</sup> Table**

Image Monitor	Additional monitors
	Up to 3 video connection points
Monitor Suspension	Additional suspension
In control room	Bolus Handswitch
	Remote footswitch
Some options are delivered with their own instructions for use. Refer to them before any use.	

**Table 5-4 Hardware options for IGS 730 OR Systems with Magnus Maquet OR Table**

Image Monitor	Additional monitors
	Up to 3 video connection points
Monitor Suspension	Additional suspension
User interfaces in the patient room	In Room AW Mouse Interface kit
	IGS Control Center Mouse Tray
In control room	Remote Control Panel
	Remote footswitch
UPS	Mainstream
	Fluoro
Some options are delivered with their own instructions for use. Refer to them before any use.	

**Table 5-5 Hardware options for systems with Omega Table**

User interfaces in the patient room	Second Control Panel at table side
-------------------------------------	------------------------------------

**Table 5-5 Hardware options for systems with Omega Table** (Table continued)

	Second Touch Panel at table side
	Table panning device
	In Room AW Mouse Interface kit
In control room	Remote Control Panel with remote stand
Table options	Touch Panel arm
	Table head extender (with Omega V only)
	Foot end rail (with Omega V only)
	Mouse Tray
	Additional IV Pole & mount
UPS	Mainstream
	Fluoro

**Table 5-6 Hardware options for systems with Innova<sup>IQ</sup> Table**

User interfaces in the patient room	Second Control Panel at table side (2)
	In Room AW Mouse Interface kit
	IGS Control Center (including additional Control Panel and Touch Panel)
	In Room AW Mouse Interface kit for IGS Control Center
In control room	Remote Control Panel with remote stand (2)
Table options	Arm board with thick pad (1)
	Table head extender
	Anesthesia screen holder (1) (*)
	Removable table rails (1) (*)
	Adaptor rail for table side controls (1)
	Head widener (*)
	Universal Clamp (*) (also called Universal socket)
	Width extender (1) (*)
	Rail extender (1)
	Patient restraint strap (1) (*)
	Round Post Clamp (1) (*) (also called easy lock socket)
	Additional IV Pole & mount
	Additional mattress
	Touch Panel arm
	Mouse tray (on table side or on the IGS Control Center)
Other	Accessory cart
UPS	Mainstream
	Fluoro
(1) Available in US (9.52 x 28.5 mm) and European (10 x 25 mm) standard sizes.	
(2) Mutually exclusive options	
(*) These options are delivered with their own instructions for use. Refer to them before any use.	

### 5.2.2.2 Software options

**Table 5-7 Software options for IGS 520 systems**

3D CT
3D CT HD
Subtracted 3D
3DStent
InnovaSpin™
Stenosis Analysis Application
One Touch QA
Ventricular Analysis Application
StentViz
StentVesselViz
InnovaSense patient contouring
Fluoro Sub/NoSub simultaneous display
ECG Acquisition Package
Blended Roadmap (not with Omega IV table)
Dose Map

**Table 5-8 Software options for IGS 530 systems**

InnovaBreeze™ (Bolus)
3D CT
3D CT HD
Subtracted 3D
3DStent
InnovaSpin™
Stenosis Analysis Application
One Touch QA
Ventricular Analysis Application
StentViz
StentVesselViz
InnovaSense patient contouring
Fluoro Sub/NoSub simultaneous display
ECG Acquisition Package
Blended Roadmap
Dose Map

**Table 5-9 Software options for IGS 730 systems**

InnovaBreeze™
3D CT
3D CT HD

**Table 5-9 Software options for IGS 730 systems** (Table continued)

Substracted 3D
3DStent
InnovaSpin™
Stenosis Analysis Application
One Touch QA
Ventricular Analysis Application
StentViz
StentVesselViz
InnovaSense patient contouring
ECG Acquisition Package
Blended Roadmap
Dose Map

**Table 5-10 Software options for IGS 730 OR systems**

3D CT
3D CT HD
Substracted 3D
InnovaSpin™
Stenosis Analysis Application
One Touch QA
Ventricular Analysis Application
StentViz
StentVesselViz
InnovaSense patient contouring
ECG Acquisition Package
Blended Roadmap

### 5.2.2.3 List of Compatible Injectors

The following injectors are compatible with the IGS systems:

**Table 5-11 Injectors compatibility with Omega Table**

Injector model	Description	Compatibility
ACIST CVI pedestal	Acist CVI pedestal version	Yes
ACIST CVI table mount	Acist CVI table mount	Yes
MEDRAD Mark 7 Arterion pedestal version	Integrated pedestal version (with ART 700 PED A & 15 ft / 4.5 m cable)	Yes
MEDRAD Mark 7 Arterion Table mount version	Table mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	Yes
MEDRAD Mark 7 Arterion ceiling mount version	Ceiling mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	Yes

**Table 5-11 Injectors compatibility with Omega Table** (Table continued)

Injector model	Description	Compatibility
Medtron Accutron HP model number 836	Medtron Accutron HP model number 836: battery operated version with castors, Interface Accutron HP for GE HealthCare IGS, separate charger Accutron HP, hand switch MEDTRON HP-HT, power supply unit Accutron HP (option) and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP model number 832	Medtron Accutron HP model number 832: mains operated version with castors, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP model number 890	Medtron Accutron HP model number 890: table mounted mains operated version, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP-D model number 833	Medtron Accutron HP-D model number 833: battery operated version with castors, Interface Accutron HP-D for GE HealthCare IGS, separate charger Accutron HP-D, hand switch MEDTRON HP-D-HT, Power supply unit Accutron HP-D (option) and Touch screen remote control Accutron HP-D (option).	Yes

**Table 5-12 Injectors compatibility with Innova<sup>IQ</sup> Table**

Injector model	Description	Compatibility
ACIST CVI pedestal	Acist CVI pedestal version	Yes
ACIST CVI table mount	Acist CVI table mount	No
MEDRAD Mark 7 Arterion pedestal version	Integrated pedestal version (with ART 700 PED A & 15 ft / 4.5 m cable)	Yes
MEDRAD Mark 7 Arterion Table mount version	Table mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	Yes
MEDRAD Mark 7 Arterion ceiling mount version	Ceiling mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	Yes
Medtron Accutron HP model number 836	Medtron Accutron HP model number 836: battery operated version with castors, Interface Accutron HP for GE HealthCare IGS, separate charger Accutron HP, hand switch MEDTRON HP-HT, power supply unit Accutron HP (option) and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP model number 832	Medtron Accutron HP model number 832: mains operated version with castors, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	Yes

**Table 5-12 Injectors compatibility with Innova<sup>IQ</sup> Table** (Table continued)

Injector model	Description	Compatibility
Medtron Accutron HP model number 890	Medtron Accutron HP model number 890: table mounted mains operated version, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP-D model number 833	Medtron Accutron HP-D model number 833: battery operated version with castors, Interface Accutron HP-D for GE HealthCare IGS, separate charger Accutron HP-D, hand switch MEDTRON HP-D-HT, Power supply unit Accutron HP-D (option) and Touch screen remote control Accutron HP-D (option).	Yes

**Table 5-13 Injectors compatibility with Allia IGS 7 OR systems**

Injector model	Description	Compatibility
ACIST CVI pedestal	Acist CVI pedestal version	Yes
ACIST CVI table mount	Acist CVI table mount	No
MEDRAD Mark 7 Arterion pedestal version	Integrated pedestal version (with ART 700 PED A & 15 ft / 4.5 m cable)	Yes
MEDRAD Mark 7 Arterion Table mount version	Table mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	No
MEDRAD Mark 7 Arterion ceiling mount version	Ceiling mount version (with ART 700 DCU DM and 100 ft / 30 m cables)	Yes
Medtron Accutron HP model number 836	Medtron Accutron HP model number 836: battery operated version with castors, Interface Accutron HP for GE HealthCare IGS, separate charger Accutron HP, hand switch MEDTRON HP-HT, power supply unit Accutron HP (option) and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP model number 832	Medtron Accutron HP model number 832: mains operated version with castors, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	Yes
Medtron Accutron HP model number 890	Medtron Accutron HP model number 890: table mounted mains operated version, Interface Accutron HP for GE HealthCare IGS, hand switch MEDTRON HP-HT and Touch Screen remote control Accutron HP (option).	No
Medtron Accutron HP-D model number 833	Medtron Accutron HP-D model number 833: battery operated version with castors, Interface Accutron HP-D for GE HealthCare IGS, separate charger Accutron HP-D, hand switch MEDTRON HP-D-HT, Power supply unit Accutron HP-D (option) and Touch screen remote control Accutron HP-D (option).	Yes

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

### 5.2.2.4 Peripheral device connection (e.g. injector)

The table provides potential equalization sockets and terminals ([1]) for the connection of external devices (e.g. injectors). Potential equalization as defined by IEC 60601-1 is intended to bring the external device to the same potential as the IGS system, which is not necessarily earth potential.

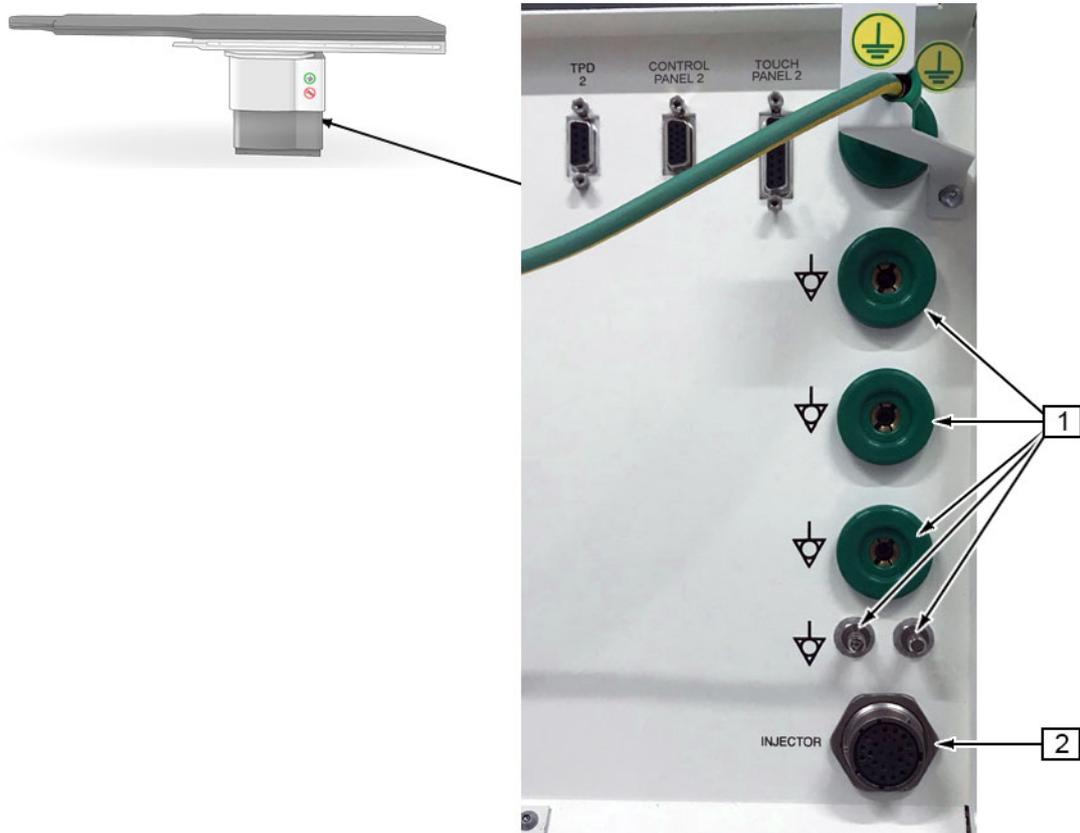
The Omega and Innova<sup>IQ</sup> tables provide a specific connector to synchronize injectors ([2]).

The sockets, terminals and injector connector are located on table foot behind cover.

When the cover is opened, do not touch the accessible contacts of connectors and the patient simultaneously.

#### Peripheral device Connections on Omega Table

Figure 5-1 Peripheral Device connections for Omega Table



Item	Description
[1]	Equalization sockets and terminal
[2]	Injector connector

When re-installing covers, do not fully tighten the bolts (two turns is enough to hold the covers in place).

#### Peripheral device Connections on Innova<sup>IQ</sup> Table

Figure 5-2 Peripheral Device connections for Innova<sup>IQ</sup> Table



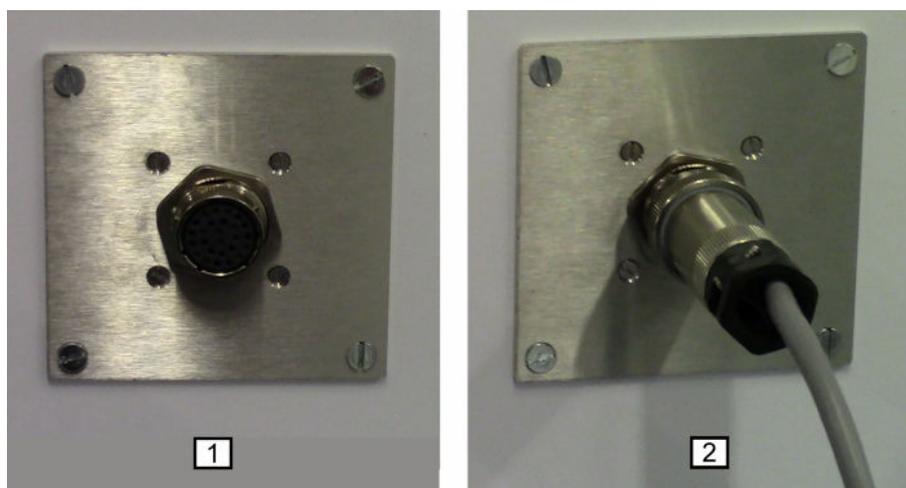
Item	Description
[1]	Equalization sockets and terminal
[2]	Injector connector

### Peripheral device Connections with Magnus Maquet OR Table

The room provides a specific connector to connect the injector to the system: use the injector cable plug.

The injector socket can be located on the wall or embedded in a boom.

Figure 5-3 Peripheral Device connections for Magnus Maquet OR Table



Item	Description
[1]	Injector Wall Socket
[2]	Injector cable plug

Connect the injector to the equipotential reference point provided by the customer in the room (cable not provided with the IGS system).

## 5.3 General Specifications

Specifications may be subject to change without modification in the behavior of the system.

### 5.3.1 Generator

**NOTE**  
 40 kV: Specifications apply to generator independently from tube association and system applications.

	Peak Power	Average Power	High Frequency range	kV - mA range
Range			80 kHz - 250 kHz	40 kV - 125 kV
Maximum mA				1000 mA
Maximum Power	100 kW*	3.2 kW*		
Additional information		Average power is intended to be the average power computed in a wide time frame, greater than three hours.	High Frequency used by the high-voltage generator	

\* May be limited, depending on the mode or application.

### 5.3.2 Anti scatter grid

The characteristics of the anti scatter grid are indicated on the grid label (Figure 5-4 on page 149).

Figure 5-4



Item	Symbol	Description
[1]		Indicates the side of the grid which faces the X-ray tube

## 5.3.3 Gantry

### 5.3.3.1 General specifications

3.7

**Table 5-14 For Allia IGS 5 Systems**

	<b>Gantry</b>
Vertical rotation speed	10°/s
RAO/LAO angulation	-117°/+105°
Cranial/Caudal angulation (with gantry rotation around the vertical axis = 0°)	50° cranial to 45° caudal
Cranial/Caudal angulation (with other gantry rotation around the vertical axis)	+/- 55° cranial to caudal
Offset arm throat depth with L-arm at 0°	107 cm (42") provides femoral coverage on most patients
Rotation speed of Offset- C-arm (Pivot) and C-arm	0°-15° per second without InnovaSense 0°-20° per second with InnovaSense
X-Ray Tube Focal Spot to Image detector distance (SID) range	<b>(For IGS 520)</b> 85 cm to 119 cm (33.5" to 46.8") <b>(For IGS 530)</b> 89 cm to 119 cm (35" to 46.8")
SID speed	8.9 cm/s (3.5 in/s)
Tube lift speed	NA
X-Ray Tube Focal Spot to Isocenter distance (SOD)	72 cm (28.3")
Isocenter to the floor	107 cm (42")
X-Ray Tube reference axis tilt versus X-Ray beam axis	<b>(For IGS 520)</b> 3° in the anode direction <b>(For IGS 530)</b> 0°

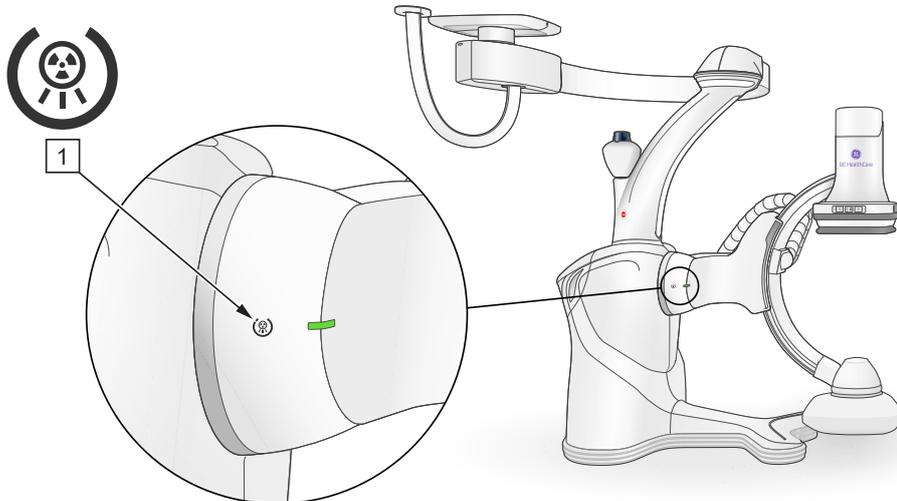
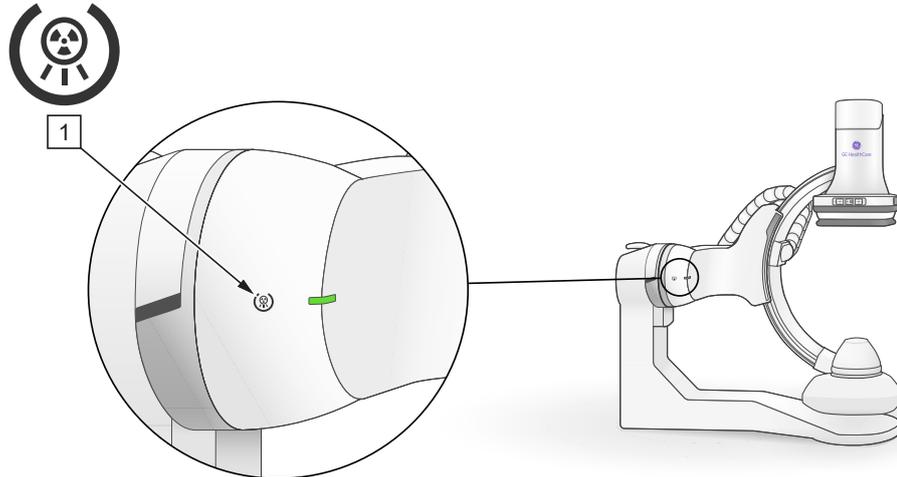
**Table 5-15 For Allia IGS 7 and Allia IGS 7 OR Systems**

	<b>Gantry</b>
Vertical rotation speed	10°/s
RAO/LAO angulation*	-117°/+105°
Cranial/Caudal angulation (with gantry rotation around the vertical axis = 0°)*	50° CRA to 45° CAU
Cranial/Caudal angulation (with other gantry rotation around the vertical axis)*	+/- 55° CRA to CAU
Offset arm throat depth with L-arm at 0°	107 cm (42") provides femoral coverage on most patients
Rotation speed of Offset-C-arm (Pivot) and C-arm	0-15° per second <b>(For Systems with InnovaSense patient contouring option)</b> 0-20° per second
X-Ray Tube Focal Spot to Image detector distance (SID) range	99 cm to 129 cm (39" to 50.8")
Detector lift speed	8.9 cm/s (3.5 in/s)
X-Ray Tube Focal Spot to Isocenter distance (SOD)	82 cm (32.3")
Isocenter to the floor	107 cm (42")
X-Ray Tube reference axis tilt versus X-Ray beam axis	<b>(For Systems with 30 cm Detectors)</b> 0°

\* For images acquired with Magnus Maquet OR Table equipped with universal table top, the values are computed relative to the back plate segment. The position of headrest (adjustable), skull clamp or horseshoe has no impact on RAO/LAO/CRA/CAU values.

### 5.3.3.2 X-Ray status LED

- A green LED is located on Pivot inner cover [1] to indicate the X-Ray status. This LED is on when the system is ready to perform X-Rays, otherwise the LED is off.



### 5.3.3.3 Allia IGS 7 and Allia IGS 7 OR Gantry specifications

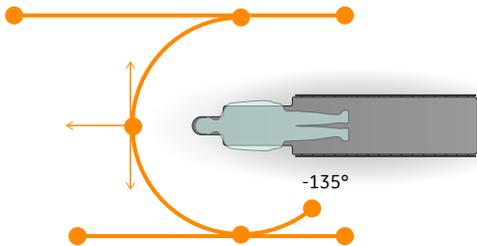
#### Gantry translation

Rotation around the vertical axis	Standard configuration: +90° / - 135° Dedicated Arm Imaging Trajectory and Extended Mobility option: +110° / - 135°
Vertical rotation speed	10°/s
Translation of the gantry towards the patient feet (with Innova <sup>IQ</sup> Table)	Up to 50 cm or 73 cm (configurable at installation)

Translation of the gantry towards the patient feet (with Magnus Maquet OR Table)	Up to 48 cm
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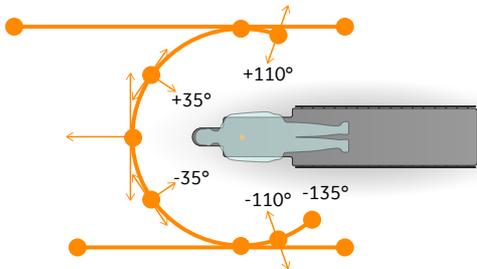
## Gantry Trajectory Capability

**NOTE**  
 Example of circuit without parking.



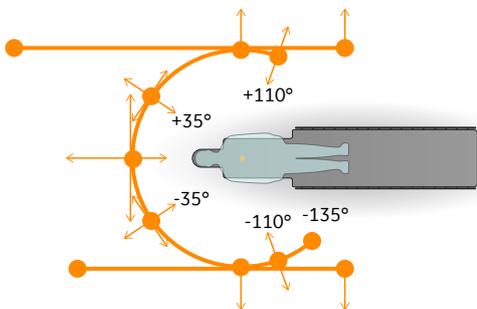
The standard configuration includes:

- 2 parking trajectories among 3 possible positions: starting from swivel angles of 0°, 90° and -90° and moving towards the head wall.
- 2 translations starting from swivel angles of 0°, 90° and -90° moving towards the head.
- 3 head translation trajectories available.



Dedicated arm imaging trajectory option adds to the standard configuration the following:

- At swivel angles of 35° and -35°, 3 translation trajectories available to image the arm.
- At swivel angles of 110° and -110°, 2 translation trajectories available.



Extended mobility option adds to the standard configuration the following:

- Possibility to select two customizable parking trajectories from a broader list of parking trajectories.
- At swivel angles of 0°, 4 translation trajectories.
- At swivel angles of 35° and -35°, 4 translation trajectories to image the arm.
- At swivel angles of +90°, and -90°, 3 translation trajectories.
- At swivel angles of 110° and -110°, 2 translation trajectories.

Please refer to [12.1.1.1 AGV Circuit on page 392](#) for detailed description of the different trajectories.

### 5.3.4 Table

**Table 5-16 For Omega IV Table**

	<b>Omega IV</b>
Table Top filtration	Less than 0.85 mm Al equivalent
Mattress filtration (including slicker if applicable)	Less than 0.70 mm Al equivalent (1") Less than 1.20 mm Al equivalent (2")

**Table 5-16 For Omega IV Table** (Table continued)

	<b>Omega IV</b>
Mattress thickness (including slicker if applicable)	2.5 cm (1") 5 cm (2")
Maximum Patient Weight	204 kg (450 lb)
Maximum Table Load (including accessories)	304 kg (670 lb)
Maximum weight on table top (including accessories)	204 kg (450 lb)
Maximum weight on fixed table side rails	40 kg
Maximum weight on table end rail	20 kg
Table Top Length	300 cm (118")
Table Top Width	46 cm (18") in Patient Trunk Area - 67 cm (26.4") max
Horizontal Float Movement	8-way
Horizontal Motorized Movement	NA
Longitudinal Speed	NA
Longitudinal Travel	110 cm (43.3")
Imaging coverage with table panning IGS 520, up to:	127 cm (50")
IGS 530, up to:	NA
Transverse Travel	Manual +/-14 cm (+/-5.5")
Transverse Speed	NA
Vertical Travel	30 cm (12")
Vertical Travel above Floor	From 78 cm (30.7") to 108 cm (42.5")
Vertical Speed	2 cm/s (0.8"/s) at 50 Hz 2.5 cm/s (1"/s) at 60 Hz
Table Base	61 cm x 52 cm (24" by 20.5")
Tilt Travel	NA
Tilt Speed	NA
Table Rotation	+/- 180°
Patient Support Type	Cantilevered

**Table 5-17 For Omega V Table**

	<b>Omega V</b>
Table Top filtration	Less than 0.85 mm Al equivalent
Mattress filtration (including slicker if applicable)	Less than 0.70 mm Al equivalent (1") Less than 1.20 mm Al equivalent (2")
Mattress thickness (including slicker if applicable)	2.5 cm (1") 5 cm (2")
Maximum Patient Weight	204 kg (450 lb)
Maximum Table Load (including accessories)	<b>7.6</b> 304 kg (670 lb)
Maximum weight on table top (including accessories)	204 kg (450 lb)
Maximum weight on fixed table side rails	40 kg

**Table 5-17 For Omega V Table** (Table continued)

	<b>Omega V</b>
Maximum weight on table end rail	20 kg
Table Top Length	333 cm (131") T2
Table Top Width	46 cm (18") in Patient Trunk Area - 67 cm (26.4") max
Horizontal Float Movement	8-way
Horizontal Motorized Movement	2-way
Longitudinal Speed	0 to 15 cm/s
Longitudinal Travel	7.4.1 170 cm (67")
Imaging coverage with table panning IGS 520, up to:	187 cm (73")
IGS 530, up to:	7.7 195 cm (76")
Transverse Travel	7.4.2 Manual +/- 14 cm (+/-5.5")
Transverse Speed	NA
Vertical Travel	30 cm (12")
Vertical Travel above Floor	7.1 From 78 cm (30.7") to 108 cm (42.5")
Vertical Speed	2 cm/s (0.8"/s) at 50 Hz 2.5 cm/s (1"/s) at 60 Hz
Table Base	61 cm x 52 cm (24" by 20.5")
Tilt Travel	NA
Tilt Speed	NA
Table Rotation	7.5 +/- 180°
Patient Support Type	Cantilevered

**Table 5-18 For Innova<sup>IQ</sup> Table**

	<b>Innova<sup>IQ</sup> Table</b>
Table Top filtration	Less than 0.85 mm Al equivalent
Mattress filtration (including slicker if applicable)	Less than 1.20 mm Al equivalent
Mattress thickness (including slicker if applicable)	5 cm (2")
Maximum Patient Weight	250 kg (551 lb)
Maximum Table Load (including accessories)	320 kg (705 lb)
Maximum weight on table top (including accessories)	275 kg (606 lb)
Maximum weight on fixed table side rails	40 kg (88 lb)
Maximum weight on table end rail	N/A
Table Top Length	333 cm (131")
Table Top Width	46 cm (18") in Patient Trunk Area - 67 cm (26.4") max 53 cm (21") in Patient Trunk Area
Horizontal Float Movement	8-way
Horizontal Motorized Movement	8-way
Longitudinal Speed	0 to 25 cm/s
Longitudinal Travel	170 cm (67")

**Table 5-18 For Innova<sup>IQ</sup> Table** (Table continued)

	Innova <sup>IQ</sup> Table
Imaging coverage with table panning IGS 520, up to:	187 cm (73")
IGS 530, up to:	195 cm (76")
Imaging coverage with table panning IGS 730 up to:	195 cm (76")
Transverse Travel	Motorized +/-13 cm (+/-5.1")
Transverse Speed	0 to 10 cm/s
Vertical Travel	57 cm (22.4")
Vertical Travel above Floor	From 79 cm (31.1") to 137.8 cm (53.9")
Vertical Speed	0 to 2.5 cm/s
Table Base	73 cm x 55 cm (29" by 21.7")
Tilt Travel	From 20° Trendelenburg to 12° reverse Trendelenburg
Tilt Speed	0 to 2°/s
Table Rotation	+/- 180°
Patient Support Type	Cantilevered

Innova<sup>IQ</sup> Table in the operating table configuration is compliant with IEC 60601-2-46.



**NOTE**

For information on Magnus Maquet OR Table technical data and load for accessories, refer to the manufacturer's operating instructions.

### 5.3.5 Digital System

DICOM V3.0 implementation in the Digital System is described in its Conformance Statement (refer to <https://www.gehealthcare.com/products/interoperability/dicom/xray-mammography-dicom-conformance-statements>).

On the DL image disk, it is possible to store up to 4000 sequences and photos altogether per plane as long as disk space is still available.

### 5.3.6 Imaging

#### Systems with 20 cm detector

	FOV 0	FOV 1	FOV 2	FOV 3
Available input screen size of detector (cm)	20	17	15	12
Horizontal sampling frequency (lp/mm)	2.5	2.5	2.5	2.5
Vertical sampling frequency (lp/mm) for all modes (including 3DStent) except 3D CT mode	2.5	2.5	2.5	2.5
Vertical sampling frequency (lp/mm) for 3D CT mode	1.25	1.25	1.25	1.25

#### Systems with 30 cm detector

	FOV 0	FOV 1	FOV 2	FOV 3
Available input screen size of detector (cm)	30	20	16	12

	FOV 0	FOV 1	FOV 2	FOV 3
Horizontal sampling frequency (lp/mm) <b>3.7</b>	1.25*	2.5	2.5	2.5
Vertical sampling frequency (lp/mm) for all modes (including 3DStent) except 3D CT mode	1.25*	2.5	2.5	2.5
Vertical sampling frequency (lp/mm) for 3D CT mode	0.83	1.25	1.25	1.25

\* 3DStent mode is not available for FOV 0 (30 cm) on systems with a 30 cm detector.

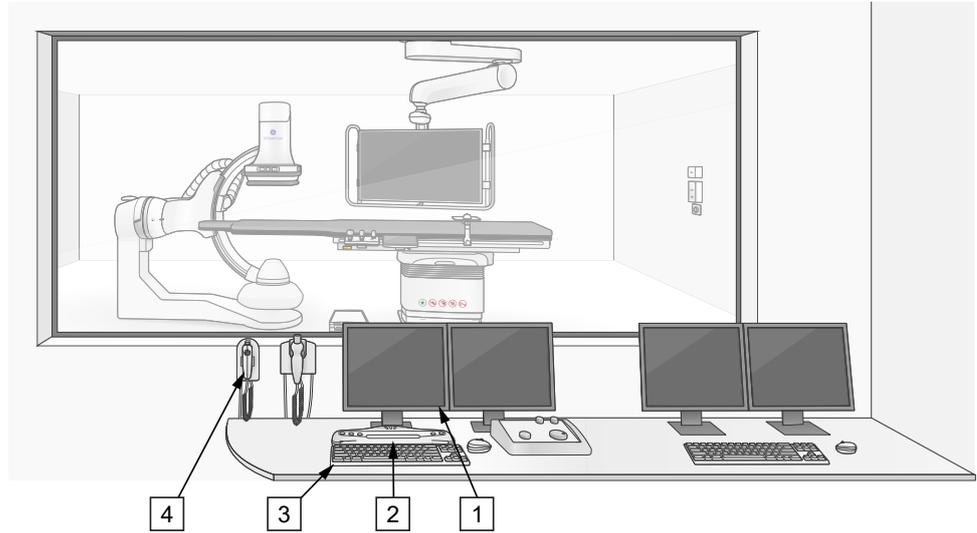
## 5.4 Guidelines for the best usage of the system

- To avoid saturation in the image, always collimate and use appropriate contour filters. Collimation also produces better image quality.
- The image quality of low level(s) may be compromised because of the patient's size or the steepness of the angle. In that case, a higher level should be used.
- Minimize the distance between the patient and the Image Receptor: when the distance between the patient and the detector is excessive, not only is the magnification increased but so are the technique parameters which could lead to a poor image that is too gray and flat, losing small vessel detail.
- For all anatomies, except for infants (patients up to one year old) at Field Of View smaller than 20 cm, it is preferable to use the grid to improve imaging efficiency since the grid reduces the scatter reaching the detector.
- For optimal performance, shutdown the system once daily.

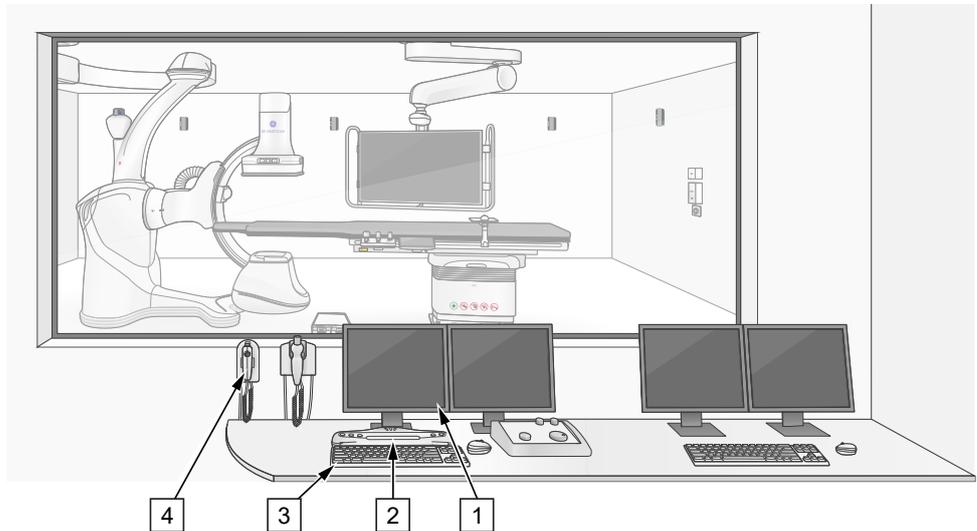
# 6 System Power-up and Shut Down

## 6.1 Console

Allia IGS 5



Allia IGS 7  
Allia IGS 7 OR



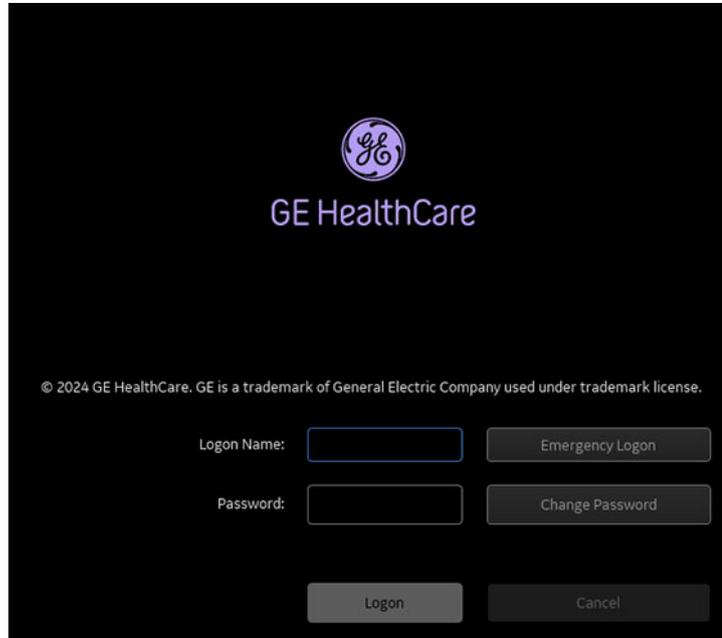
Item	Description
[1]	DL screen (a 19" Color Monitor)
[2]	Vascular Control Interface Module (VCIM)
[3]	Console Keyboard and Mouse
[4]	Exposure Hand Switch

## 6.1.1 Logon Screen

3.7

The **Logon** screen is displayed when you have either (re)started the system or when someone has logged out. The content of the **Logon** screen is configured by your system administrator.

**Figure 6-1 ‘Logon’ screen with Emergency Logon enabled**



- **Logon Name:** text field for your system logon name. Your system administrator must set-up a unique logon name for you.
- **Password:** text field for your password. A password is assigned to you by the system IT administrator.
- **Emergency Logon** button: launches the Emergency Logon screen if emergency access mode has been enabled by your system administrator. It does not require a logon name or password.
- **Change password** button: allows you to change your password. This feature is applicable only if your account does not belong to a central user repository. Contact your system administrator to understand the applicable change password procedure.
- **Logon** button: initiates the startup procedure.
- **Cancel** button: stops the login procedure.

### 6.1.1.1 Login/Logout

Use these procedures to log in and out of your system.

#### Login

From the Logon screen:

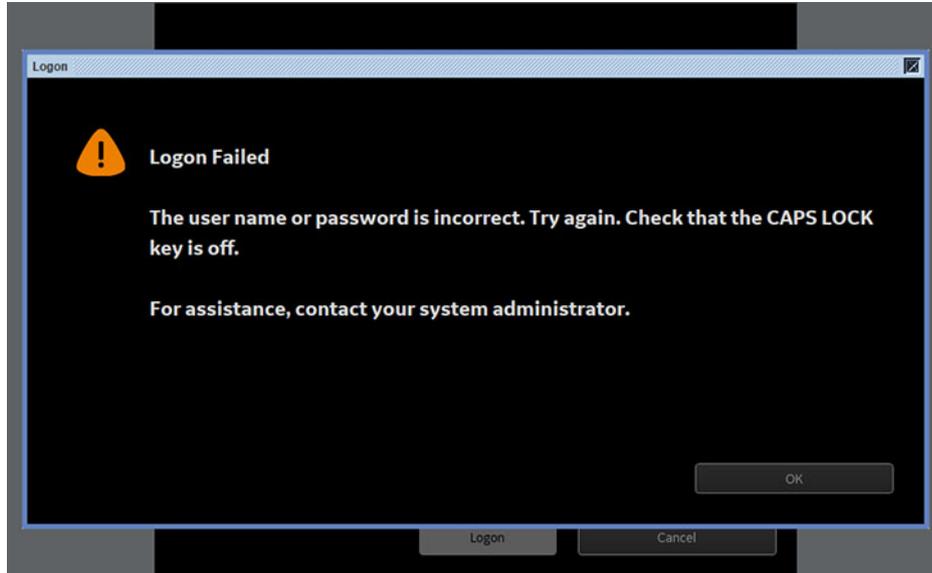
1. Type your assigned logon name.
2. Type your password.
3. Click on **Logon**.  
You can now access the system features.



**NOTE**

If the system startup is not finished when you log in, you will see a progress bar showing the status of the system startup. You will access the system features once the startup is finished.

In case of wrong password, the following message appears on the screen:



Click **OK** to retrieve the login screen.

**Logout**

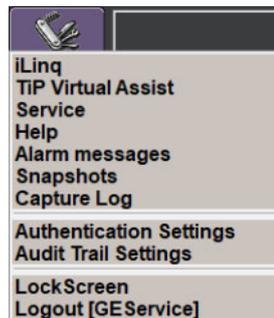
Logout from the system when an exam is started is not possible. End the exam first (refer to [How to End an Exam on page 183](#)) and then follow the next procedure to logout.



From the DL screen, click on the **Utilities Key** icon:

From the **Configuration** list, click on **Logout**.

The Logon Name is displayed next to it. When emergency access is used, the Logon Name displayed is [Emergency].



**6.1.1.2 Emergency Access**

Use Emergency access mode only if your access is temporarily denied, for a clinical procedure. Contact your system administrator as soon as possible to fix the situation.

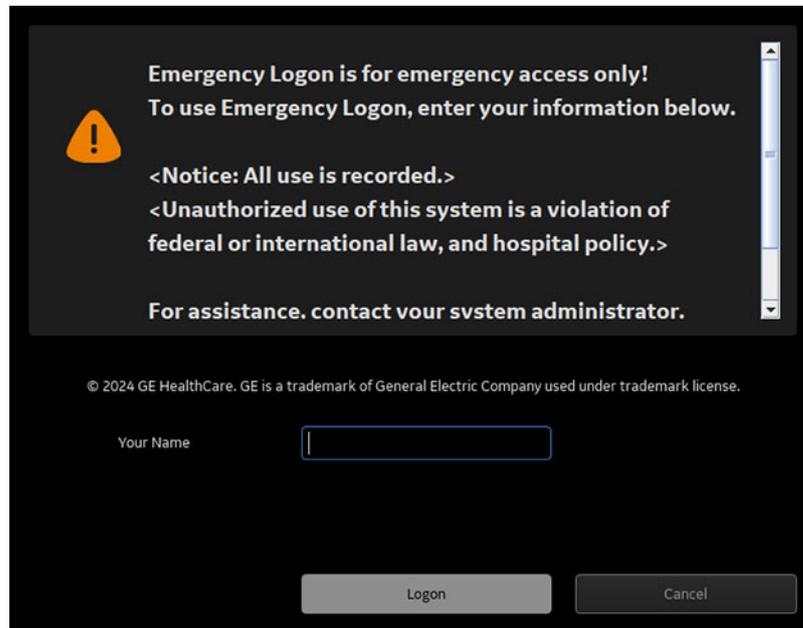
The Logon screen may display the **Emergency Logon** button. Turning this option ON or OFF is performed by your system administrator. If this type of access mode has been disabled on your system, ask your system administrator about alternate emergency access modes.

When using **Emergency Logon**, you are prompted to enter your name, but no password is required. The permissions assigned to this type of access mode are the same as for a Limited user role.

From the Logon screen:

1. Click on the **Emergency Logon** button.  
This will launch the Emergency Logon screen:

**Figure 6-2 'Emergency Logon' screen**



2. Type required information (free text) in the text field.
3. Click **Logon** to access the system or **Cancel** to stop the logon procedure.



**NOTE**

The current clinical work is not stopped at logout. When the user logs back in with the same or more privileges than the previous user, the new user automatically retrieves the ongoing clinical work.

## 6.1.2 Screen lock/unlock

Use this feature to lock the screen when not in use. This will help preventing unauthorized access to the system and patient data disclosure.

When the screen is locked, patient information (including images) is not displayed on the monitors. Some user interfaces (Console keyboard and mouse, keypad and remote control, Touch Panel) cannot be used either to display such information. Gantry and table movements and related user interface are still enabled.

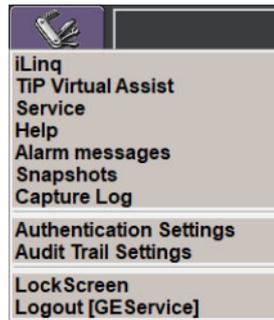
### Screen lock

Locking the screen when an exam is started is not possible. End the exam first (refer to [How to End an Exam on page 183](#)) and then follow this procedure to manually lock the screen.



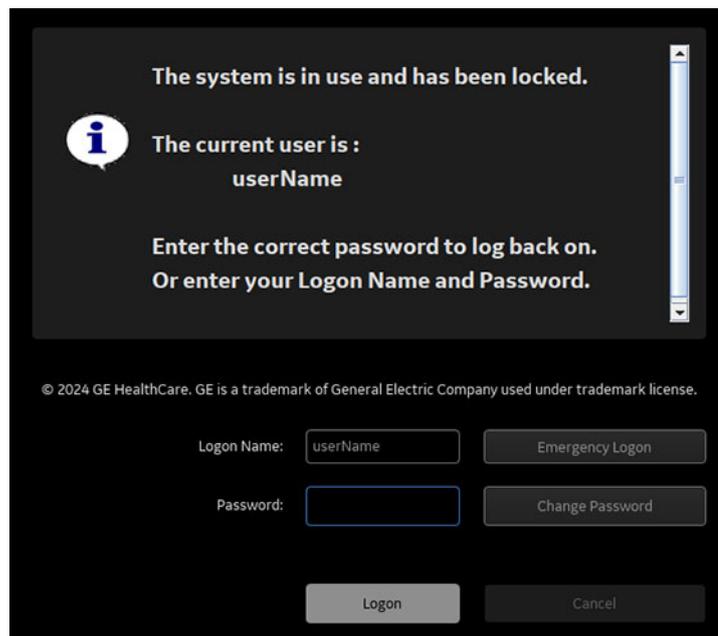
From the DL screen, click on the **Utilities Key** icon:

From the **Configuration** list, click on **LockScreen**.



Once the screen lock is performed, the **Logon** screen is displayed.

**Figure 6-3 Logon Screen once the screen is locked**



The screen may also be configured to be locked automatically after a period of inactivity on user interfaces (Console keyboard and mouse, Touch Panel, keypad, remote control). This period is applicable only when there is no exam started.



**NOTE**

The current clinical work is not stopped when the screen is locked.

## Screen unlock

Log in to unlock the screen.

When a user with the same or superior level of privileges than the previous user unlocks the screen, the new user automatically retrieves the ongoing clinical work.

If the screen was locked by a user with more privileges, and service or advanced configuration activities are ongoing, you are not allowed to unlock it. Contact the previous user to unlock it and properly finish the ongoing tasks.

If needed, you can restart the system to logon with your own credentials.

## 6.1.3 Password modification

Use this procedure to change your password whenever you need or are requested to. This feature is applicable only if your account does not belong to a central user repository. Contact your system administrator to understand the applicable change password procedure.

Changing the password is possible any time after the retention period defined on your system. The retention period is the time delay after which a password change is allowed. Contact your system administrator to understand the applicable delay.



### NOTE

A password expiry period might have been defined on your system. After this delay, you will be required to change your password. Contact your system administrator to understand the applicable password expiry period.

From the **Logon** screen:

- Press the **Change password** button.
- Enter the new password on the displayed Change password screen. When choosing your new password, follow the rules listed on the screen.

**Figure 6-4** 'Change Password' screen

You have chosen to change your password.  
Complete the fields below and click OK.  
If you do not wish to change your password at this time, click the Cancel button.

Password creation rules for this system:  
Your password must have a minimum length of 8 characters, a maximum length of 255

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Logon Name:

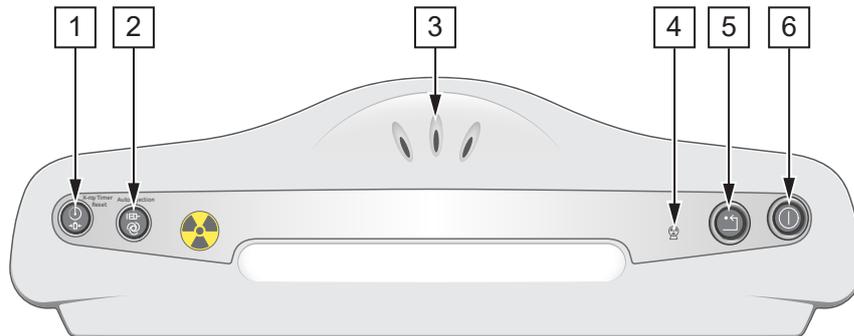
Old Password:

New Password:

Confirm New Password:

OK Cancel

## 6.2 Vascular Control Interface Module



Item	Description
[1]	X-Ray Timer Reset
[2]	Auto Inject ON/OFF
[3]	Audible Signals (X-Ray timer, X-Ray ON)
[4]	X-Ray ON Indicator
[5]	System RESET
[6]	System ON-OFF

The VCIM controls are:

- **SYSTEM RESET:** Press the Reset button for 2 s to reset the system.



**NOTE**

The reset button is inhibited for 60 s after a system boot is started.

- **INDICATOR LAMP** for X-Ray (Fluoroscopy and Record).
- **X-RAY ON** appears in the right side of the VCIM, and the console beeps when X-Rays are being produced. X-Rays are produced when the X-Ray exposure switch on the hand control or footswitch is pressed.
- **Auto Inject ON/OFF:** Press on the button (button lit) to synchronize the injection with the acquisition.
- **X-Ray Timer Reset**  
Depending on local regulation, press the button to reset the X-Ray timer after the elapsed duration.
- **ON/OFF:** Turn system power ON and OFF.  
To switch ON, press for at least 0.5 s.  
To switch OFF, press for at least 2 s (After selecting **End Exam** on the DL screen if there is an exam open).



**NOTE**

The monitors must be warmed up at least 30 mins for optimum performances.

## 6.3 System Power-up

### System Power-up

Push the **ON/OFF** button of the VCIM.

### Initial startup or after emergency power off



#### NOTE

The system will not boot if the mains voltage is not present.



#### NOTE

The MDP (Mains Disconnect Panel), the PDU (Power Distribution Unit) and the UPS are located in the technical room.

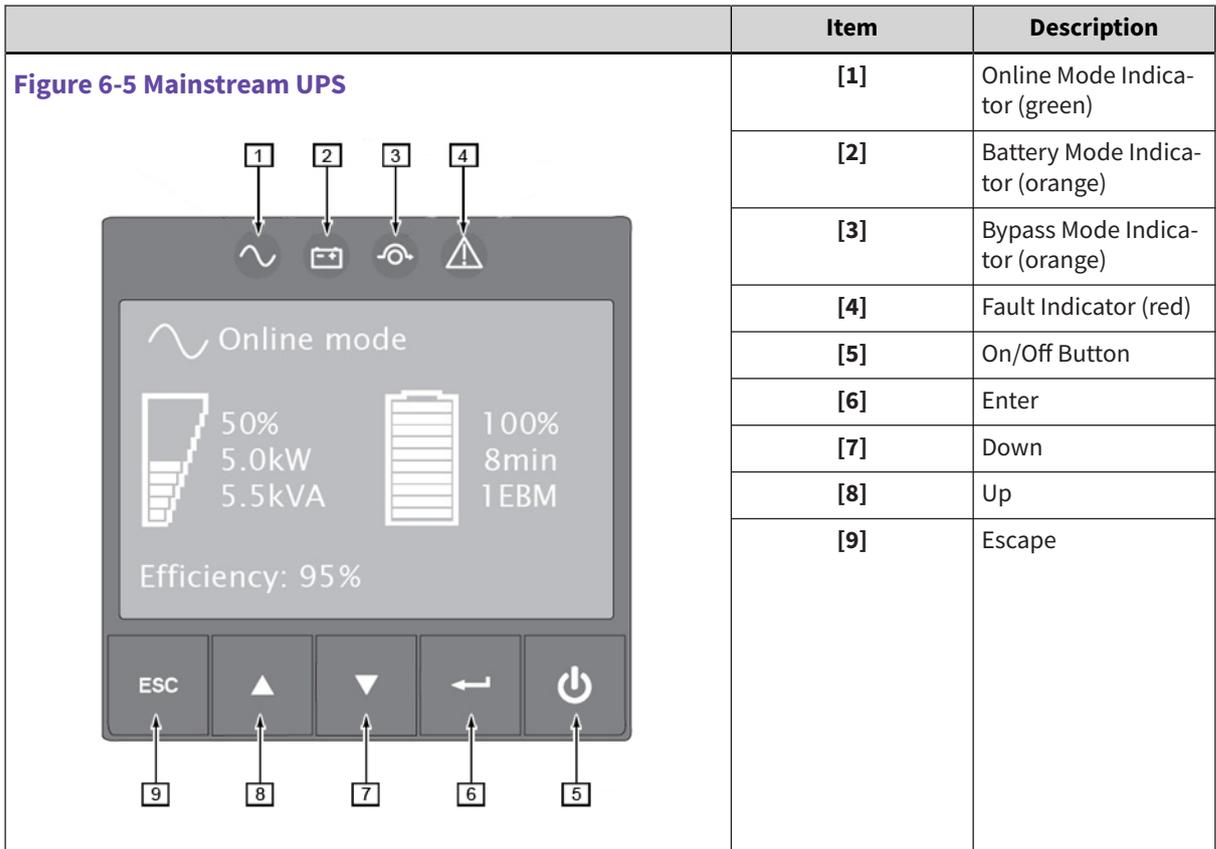
Check that the emergency power off button is deactivated. Turn on the main breaker of the Mains Disconnect Panel. Check that the 3 green lights on the PDU are on.



Item	Description
[1]	3 green lights: <b>ready to power up</b>
[2]	yellow indicator lights: <b>system shutdown indicator</b>

#### (For System with the mainstream UPS)

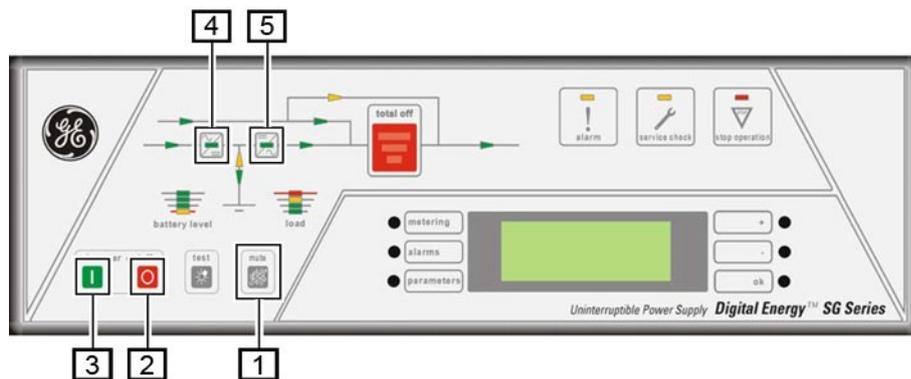
- Make a long press on the **ON/OFF** button of the UPS until it starts.
- Check the UPS Power On Indicator or online mode indicator is on.



**(For Systems with the Fluoro UPS UL)**

- Press the **mute** key [1] to reset alarm and buzzer if needed.
- Press the **Inverter OFF** key [2]. The rectifier LED or symbol [4] starts blinking, wait until it remains lit.
- Press the **Inverter ON** key [3]. The inverter LED or symbol [5] starts blinking, wait until it remains lit.

**Figure 6-6 UL UPS**



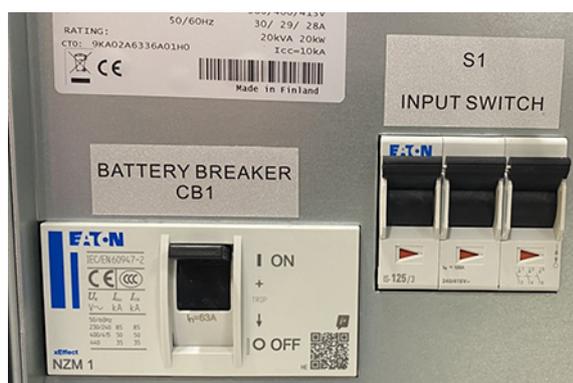
The system is now ready to start, push the **ON/OFF** button of the VCIM.

**(For Systems with the Fluoro UPS CE)**

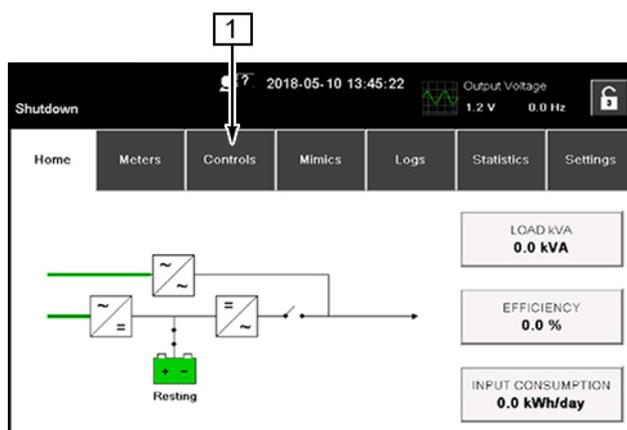
- Open the door of the UPS.

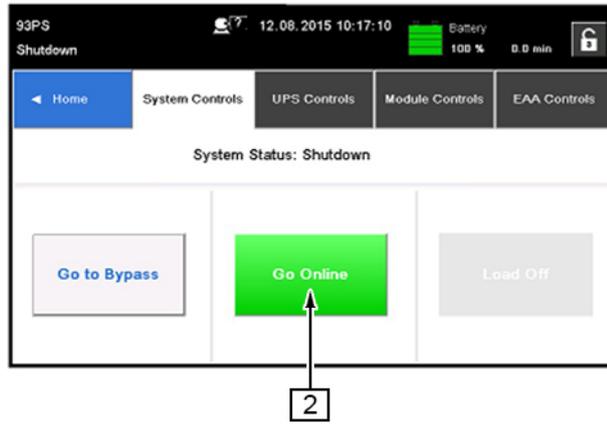


- Check that the **S1 input switch** is closed. If not, close it.

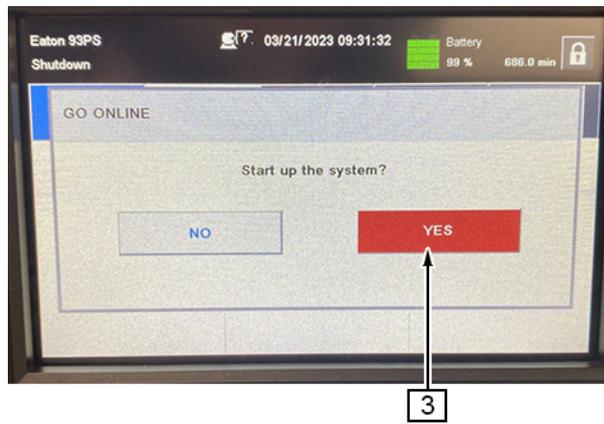


- Check that the battery breaker CB1 is on the ON position. If not, move it first to the OFF position (down) then to the ON position (up).
- Close the door.
- Wait for the UPS to boot, then go to the **Controls** menu [1] and press the **Go Online** button [2].





- When prompted **Start up the system?**, press the **Yes** button [3].



- When the UPS is fully booted, the lights on the side of the UPS are green.



## 6.4 System Shutdown

A long push on the **ON/OFF** button of the VCIM will initiate a system Shutdown.

## 6.5 Energy saving instructions

It is recommended to shut the system down on a daily basis.

Standby power mode, resulting in a 20% reduction in energy when idle.

High Image Quality Optimization and Dose reduction features result in reduce power consumption:

1. For Coronary procedures:
  - High Contrast Fluoroscopy brings a higher Image quality (less noise) in High BMI patients.
  - High Contrast Fluoroscopy brings acts as an image stabilizer in patients with Tachycardia leading to less dose.
2. For Interventional Radiology / Interventional Oncology:
  - CBCT with Motion freeze reduces the number of retakes as the respiratory motion is well compensated.

# 7 Data Management

## 7.1 DL Screen

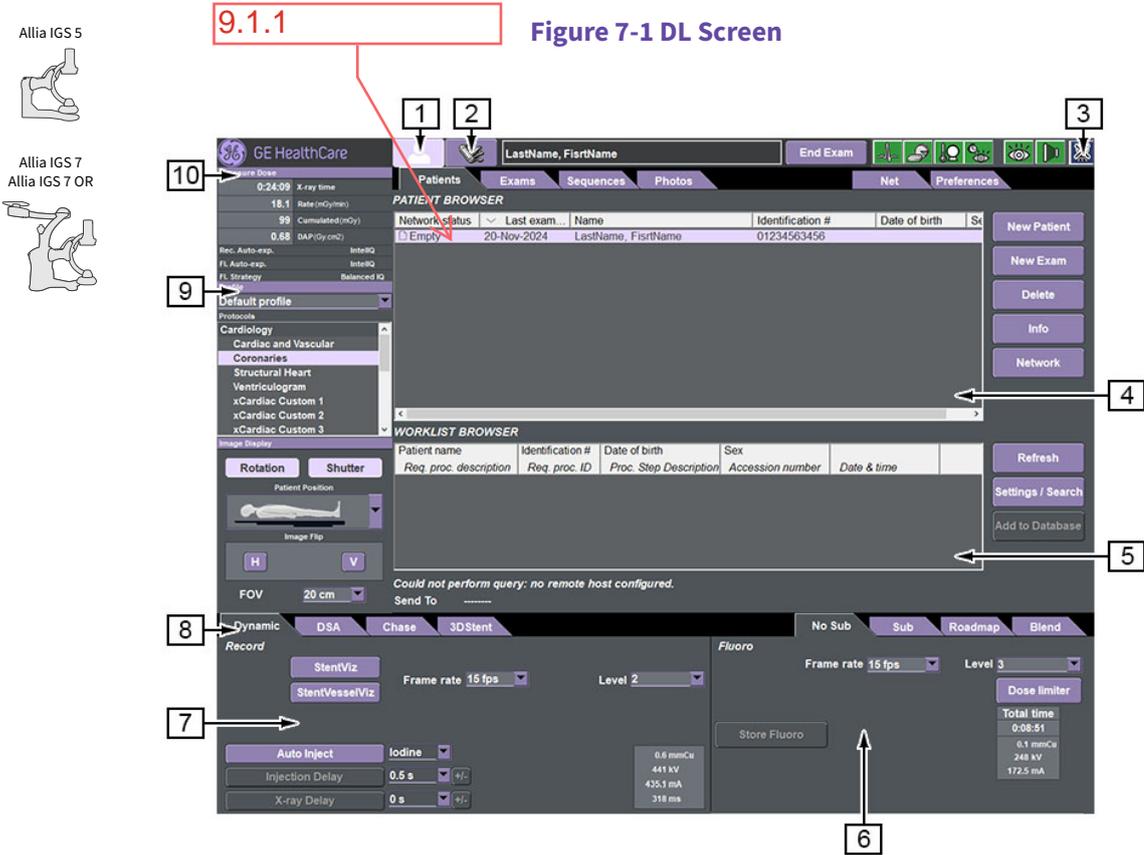


Figure 7-1 DL Screen

Item	Description
[1]	Exam Management Screen
[2]	Utilities Menu
[3]	Monitoring Bar
[4]	Patient Browser
[5]	Worklist Browser
[6]	Fluoroscopy Information Window
[7]	Record Information Window
[8]	Application Selection Window
[9]	Acquisition Protocol Window 9.1.1
[10]	X-Ray Timer and Dose Information Window

No selection is allowed during Record or Fluoro acquisition. Only the Monitoring Bar can be opened by clicking on one of the monitoring icons.

## 7.1.1 Monitoring Bar

The monitoring bar consists of the seven icons, which provide information about the state and availability of the following functions: ECG Signal, Disk Space, Heat Units, X-Ray Timer, Fluoro, Record, X-Ray disable button.

						
ECG Signal Status Button	Disk Space Status Button	Heat Units Status Button	X-Ray Timer Status Button	Fluoro Ready Icon	Record Ready Icon	X-Ray Disable Button

A color code with five levels is used: [6.1.2](#)

- (0) White: function is disabled.
- (1) Green: function is OK / Ready or ECG is Online.
- (2) Yellow: function is above a first threshold. ECG is Stabilizing the signal.
- (3) Flashing yellow: function is above a second threshold.
- (4) Orange: function is not available. User action may be needed (reset X-Ray timer, free disk space, reset R-peak detection, etc). ECG is not detecting a trigger.



**NOTE**

The X-Ray disable button does not obey to this color code (refer to [X-Ray Disable Button on page 171](#)).

Clicking on one of the first four icons will open a pop up window containing more detailed info.

- For ECG Status, see [How to Check or Reset the ECG signal \(Option\) on page 310](#).
- For Disk Space Status see [How to Check the Disk Space on page 313](#).
- For Heat Units Status see [How to Check the Heat Unit Informations on page 314](#).
- For X-Ray Timer see [10.3.6 X-Ray Timer on page 240](#).

### Fluoro / Record Ready

Applicability	Fluoro	Record
Allia IGS 5   Allia IGS 7 Allia IGS 7 OR 		

The Fluoro and Record monitoring icons have 2 colors:

- Green: READY (enabled) for X-Ray - Fluoro / Record.
- Orange: NOT AVAILABLE (disabled), e.g. due to End Exam, disk full, Over limit Heat Units...

## X-Ray Disable Button

3.7

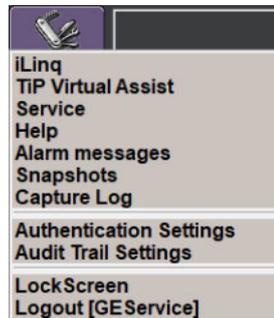


The X-Ray button allows disabling or enabling X-Rays, outside an acquisition, by pressing the button. The X-Ray button has three states:

State	Description	Icon
INACTIVE	During an acquisition, the button is inactive.	
DISABLED	Outside an acquisition, when X-Rays are disabled.	
ENABLED	Outside an acquisition, when X-Rays are enabled.	

### 7.1.2 Utilities Key

Access to functions listed below depends on the level of privileges assigned to the users. Contact your system administrator if you need access:

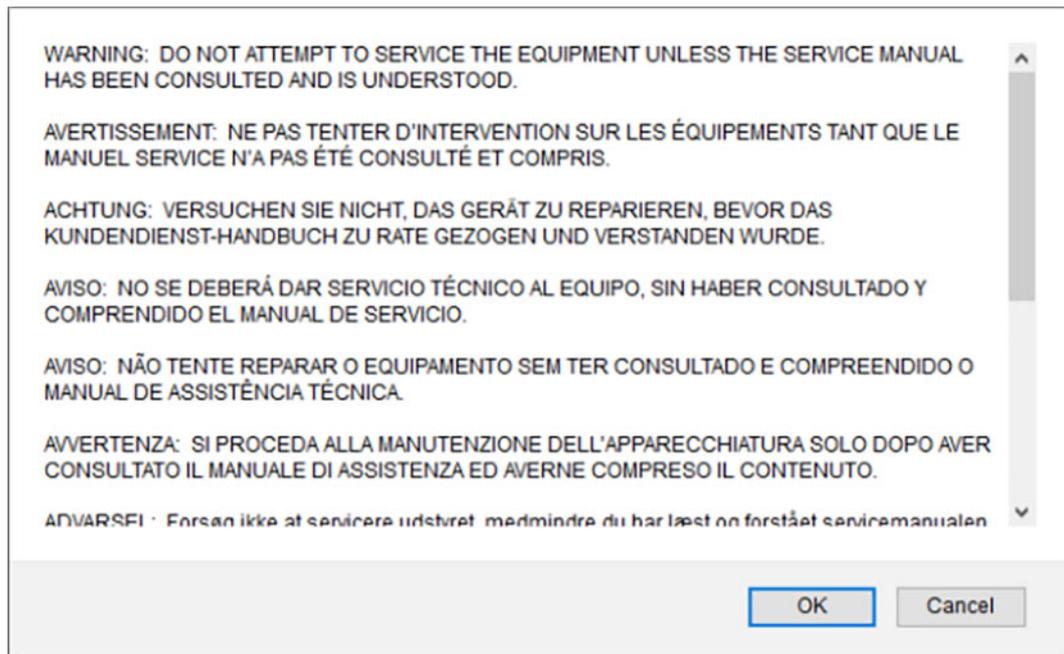


**iLinq:** Access to direct interactive communication with GE HealthCare via In Site Connection.

**TiP Virtual Assist (TVA):** Allows to be remotely trained by an Application Specialist or the OnLine Center. The connection is initiated on the user request.

**Service:** Access to a panel of menus such as Quality Assurance Program (QAP), InnovaSpin Parameters, configuration and Service...

When selecting **Service**, a pop up window opens:



Click **OK** after the Warning was read and understood.

**Help:** Access to the User Manual.

**Alarm messages:** Access to the list of translated Alarm messages.

**Snapshots:** Allows to capture all screens including images (image must be paused first) and the last Error Log.

**Capture Log:** Captures system log files.

**Authentication Settings:** Provides access to the Authentication administration interface.

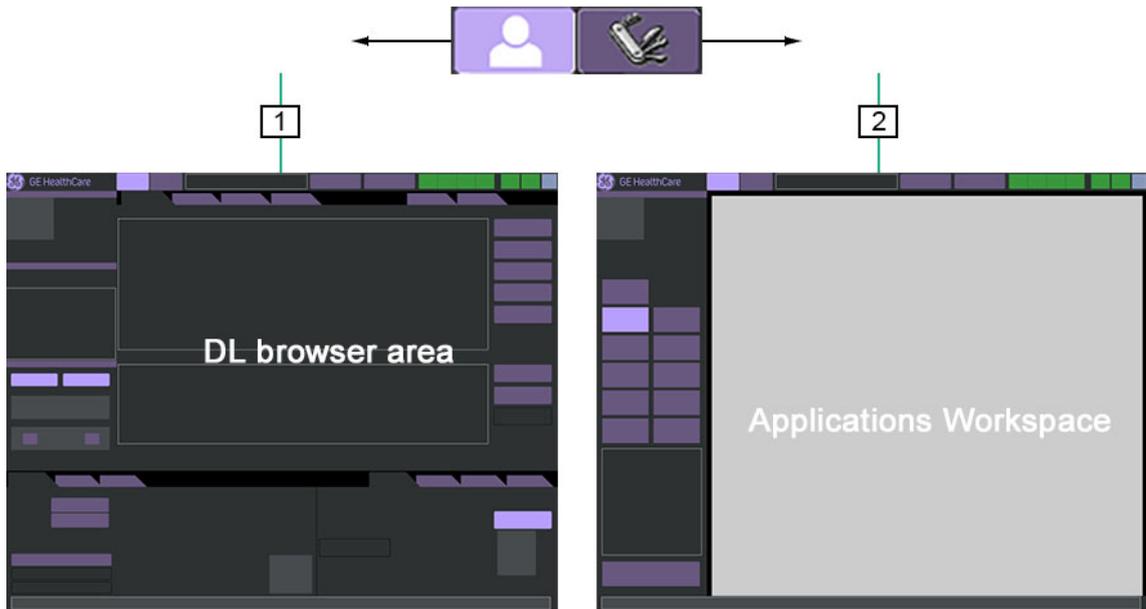
**Audit Trail Settings:** Provides access to the Audit Trail administration interface.

**LockScreen:** Allows any user to lock the system when it is not being used.

**Logout [username]:** Displays the username of the currently logged in user (i.e igsservice).

### 7.1.3 Exam / Utilities Switch

You can switch between Exam management [1] and Utilities [2] windows by clicking on the icon corresponding to the application to be shown, see the figure below.



### 7.1.4 Dose Information Record

On the system the following dose information are recorded at exam level:

Allia IGS 5



Allia IGS 7  
Allia IGS 7 OR



Name: Test GE									
^ #	Network status	Type	Date	Procedure step	Study ID#	Physician	Fluoro time (h:min:s)	Dose (mGy)	DAP (Gy.cm2) Total / Record / Fluoro
1	Information		29-Jul-2024	In Progress			0:01:22	1	0.29/0.29/0.01

Item	Description
[1]	Fluoro time (h:min:s)
[2]	Dose (mGy)
[3]	DAP (Gy.cm <sup>2</sup> ) - Total / Record / Fluoro

When starting a new exam these fields are empty.

During exam the dose information are displayed on the reference display (Dose).

The values are stored and updated in the exam browser at the end of the exam only.

The DAP display unit is selectable:

- Gy.cm<sup>2</sup>
- cGy.cm<sup>2</sup>,
- mGy.cm<sup>2</sup>.