

GE Healthcare

# Innova 3100<sup>IQ</sup> Pro

Cardiovascular Flat Panel  
Imaging System



# Innova 3100<sup>IQ</sup> Pro

Maximise Your Clinical Benefit.





## Leading Image Quality and Dose Efficiency.

GE Innova technology has always been leading the industry in areas of image quality and dose efficiency.

Since the introduction of Innova in the year 2000 as the world's very first flat panel cardiovascular system, GE has announced several breakthroughs aimed at improving cardiovascular procedure outcomes, safety and dose to the operator. The system enables excellent visualisation to access even difficult-to-reach lesions with effective interventions. The system has been developed by listening to the voice of the customer – the interventionist.

Image Quality

Operability

Best Workflow

# Optimal Size

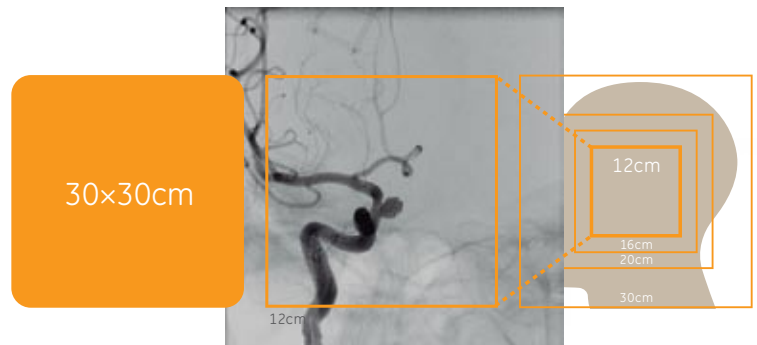
GE was the first to introduce a truly versatile detector for combined neuro, angio, vascular and coronary interventions on a single platform.

The 30 x 30 cm detector offers the optimal resolution and image flexibility for every procedure, with four fields of view in fluoroscopy, record and 3D modes. Advanced robotic collision sensing combined with a 3 focal spot high power x-ray tube enables faster and easier procedures in every setting and clinical situation.



# 12cm FOV Quality

The smallest selectable FOV of 12 cm is optimal for high resolution visualisation during fluoroscopy and acquisition, giving the operator procedural confidence.

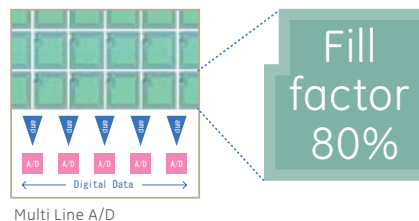
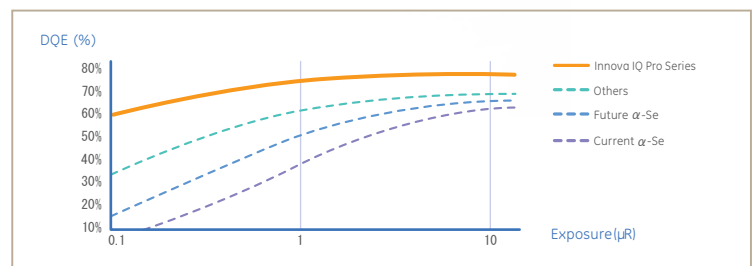


# Revolution Detector

Designed and developed exclusively by GE, the Revolution detector is covered by over 160 patents and offers the industry standard of detective quantum efficiency for all procedures.

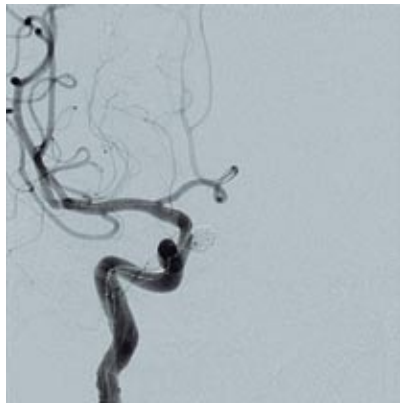
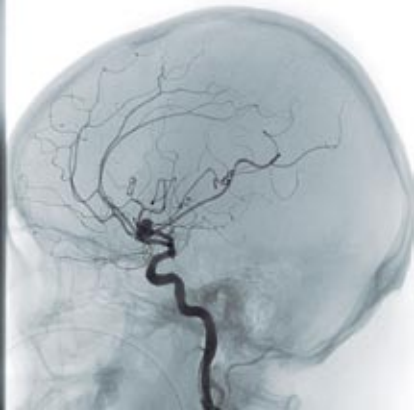
The exclusive features of the revolution detector is high conversion efficiency, low lag, low noise in readout and high fill factor.

Unlike other detectors, the Innova detector has onboard A/D converters per each readout line, thereby speeding up conversion and avoiding noise. There is no analog multiplexing or light reset in GE detectors.

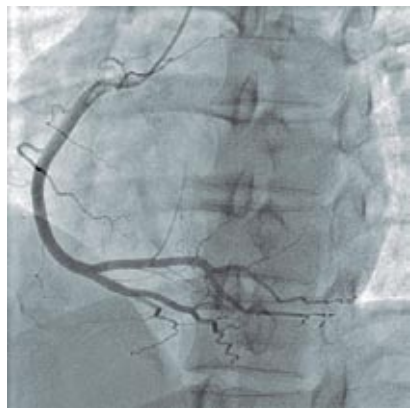
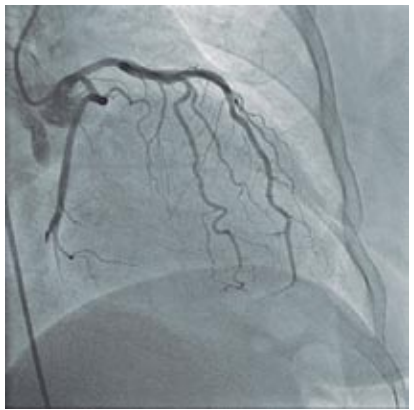




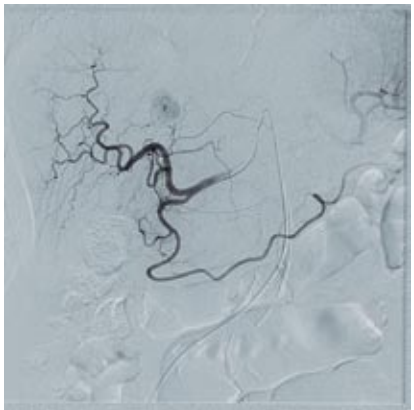
Neuro



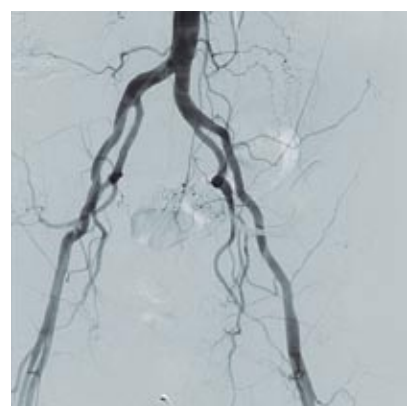
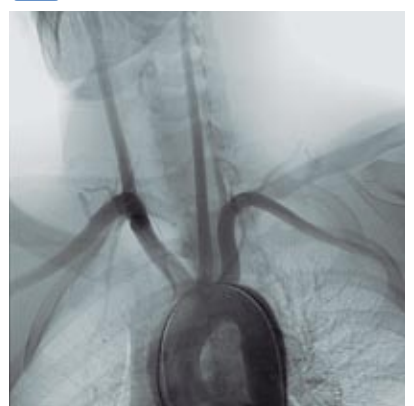
Cardiac



Abdomen



Peripheral



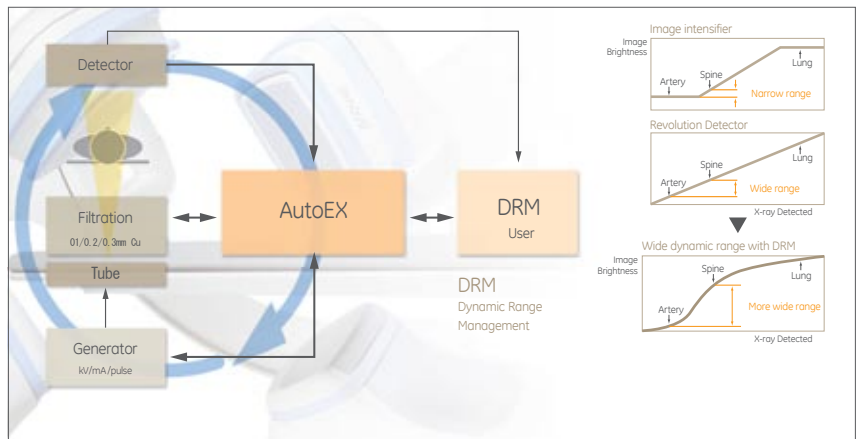
# Auto Ex & DRM

The high detector DQE is translated into higher image quality and dose efficiency by two advanced technologies called Auto Ex and DRM.

Auto Ex is a unique real-time neural network system that measures patient thickness and analyses the image content for computing the optimal x-ray exposure to maximise the contrast-to-noise in the image.

This eliminates the burn out and over exposure associated with other systems that employ a fixed detector dose. The operator can select at the table-side the preferred Auto Ex trajectory protocol based on physician preference or device or procedure. These can be stored as single click protocols for personalised dose setting.

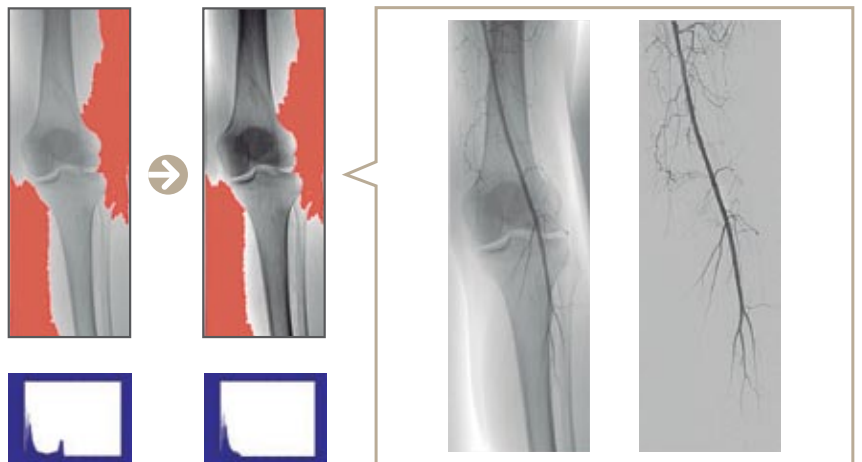
DRM is a real-time online post processing algorithm that enhances the vessel contrast and device visibility in all viewing conditions including low-dose fluoroscopy increasingly preferred by physicians. This eliminates image burn-out in lung fields and also dark regions on spine and diaphragm. Since DRM operates at the image acquisition frequency, every portion of every image viewed has the optimal image contrast.



# Smart ABD

Smart ABD is a special implementation to reduce image blooming and optimise the image contrast in DSA, DA and other similar imaging situations.

With smart ABD, you get the desired contrast in the region of interest without burn outs. You do not need to use external leg filters or lead blocks anymore.



Even unsubtracted images will show both the vessel contrast and the bone information in the image, thereby eliminating the need for subtraction in many situations.

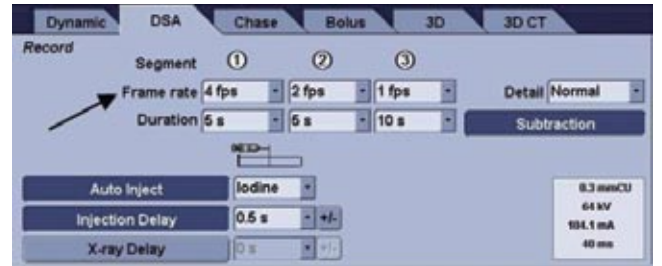
# High with Low

## High Quality Imaging with Low Dose.



# Multi Segment DSA

New!



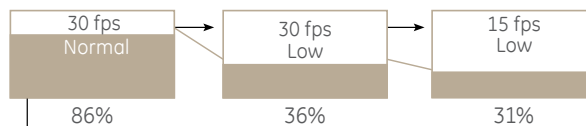
# Personalised Dose Setting with Auto Ex

New!

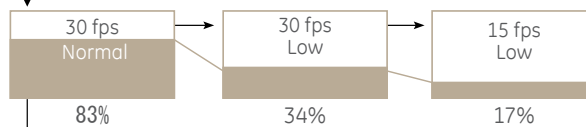


## Personalised DOSE Setting

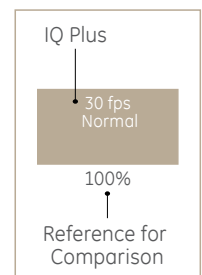
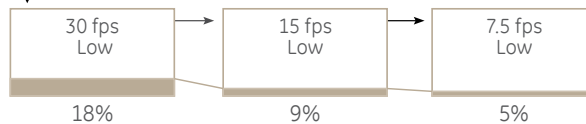
IQ Standard + Balanced IQ & DOSE (low noise)



Smart IQ + Max DOSE Reduction (high contrast)



RDL std. + Max DOSE Reduction



Estimated dose ratio is determined in the IEC 60601-2-43 conditions.

# Excellent 3D

## For maximum clinical value.

GE pioneered 3D angiography in 1994 and has been the industry-leader ever since. The Innova 3D protocol is user-friendly and produces the highest image quality in all studies. Low dose acquisition combined with unsubtracted 3D protocol means you save time and radiation. Automatic image reconstruction and multiplanar views which can be manipulated at the table-side mean that the 3D acquisition is streamlined. From fluoroscopy to 3D acquisition, reconstruction and image guidance for intervention – all accomplished very fast.

**STEP 1** One touch acquisition

Initiate 3D from tableside with one touch protocol


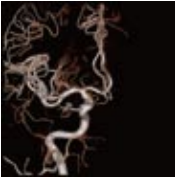
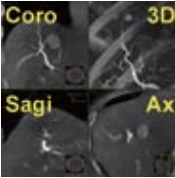



200 deg single rotation acquisition completed in 5 seconds safely

Innova 3D	: 40deg/sec, 200° Rotation / 5sec Scan
Innova CT	: 20deg/sec, 200° Rotation / 10sec Scan
	: 10deg/sec, 200° Rotation / 20sec Scan

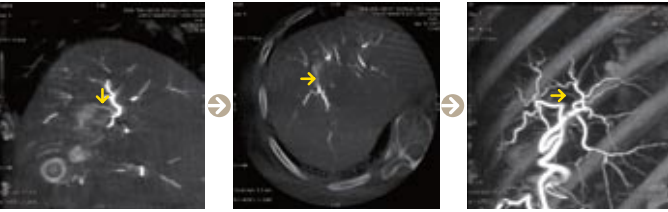
**STEP 2** Automatic transfer and recon of 3D on Advantage Workstation

Within seconds, the AW reconstructs all the 3D views including orthogonal multiplanar views and all are displayed simultaneously on the side-by-side monitors.

Innova 3D      Innova 3D+

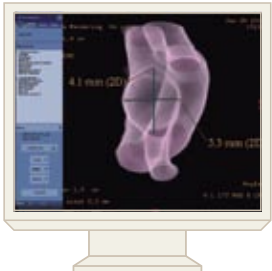

VR      MPR



Biopsy needle guidance

**STEP 3** Working Angle Optimisation



The AW has easy menus to be selected in-room with the tableside mouse or via the workstation keyboard and mouse so that the 3D model can be analysed for optimal target angle to intervene during coiling or stent deployment. This angle can be sent to the gantry instantaneously so that the fluoroscopic angle is ideal for visualisation without excessive radiation or trial and error. This is possible with also CT and MR images as the AW is a powerful multimodality workstation.

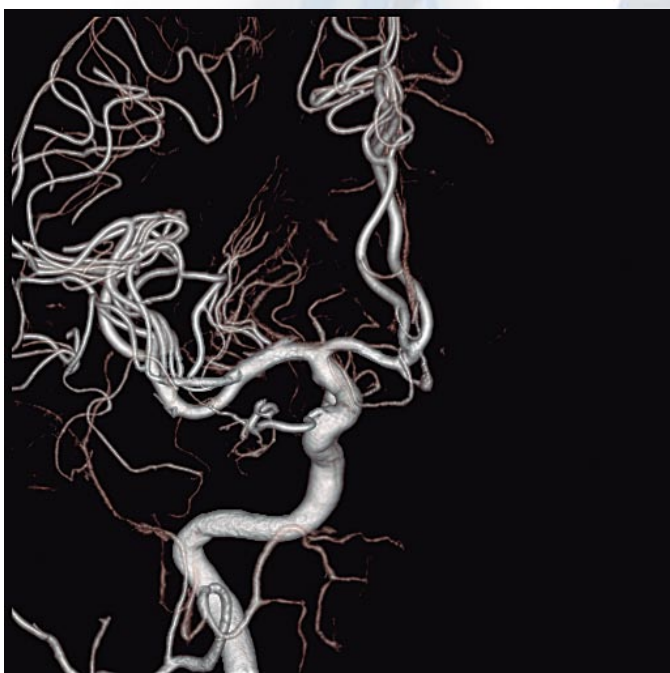
**Innova Synchro3D / In Room 3D** New!

The tableside in-room 3D mouse along with the in-room workstation monitor enables very easy manipulation of the 3D model including zoom and rotate functions. Preferred views can be stored for later recall. The 3D mouse can be used to send the preferred angle to the gantry. Subsequently, by activating the Follow-the-gantry function of Synchro 3D, it is possible to have the 3D model follow the fluoroscopic view even if the gantry angle is subsequently altered.

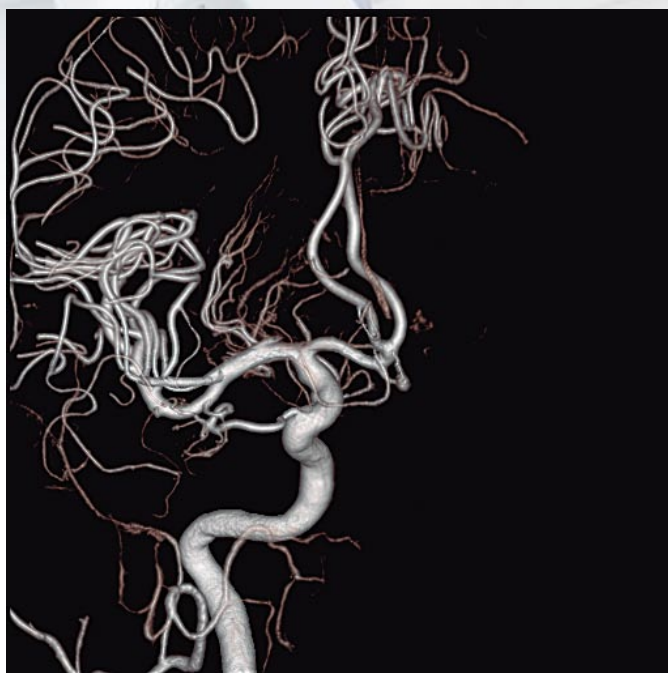
The excellent fluoroscopic image quality combined with full-sized synchronised 3D image on the adjacent monitor avoids ambiguity and motion artifacts. This speeds up and improves the coiling or stent deployment procedure.

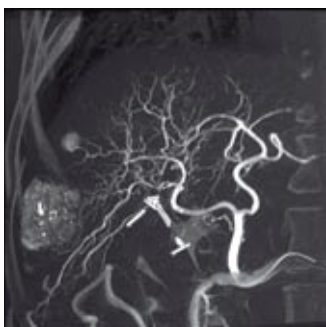




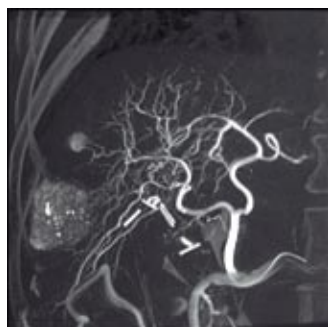
Volume rendered 3D image – Innova 3D



Post – intervention 3D



Clear lesion visualisation



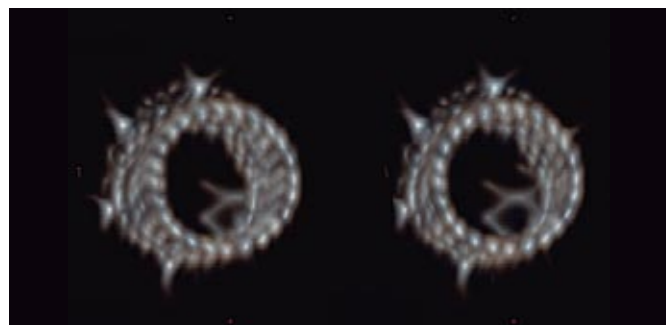
Innova CT soft tissue imaging



3D angio



Excellent device visualisation view



High resolution cross sections



Transparent view

# High Performance with Advanced Application.

In addition to impeccable image quality at reduced dose, the Innova IQ Pro offers several advanced applications for better outcomes and faster procedures.

## StentViz New!

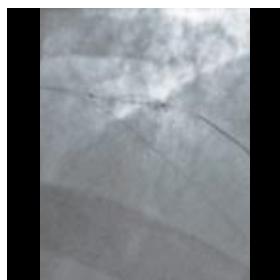
The unique DRM technology enables unambiguous device visualisation in any region during fluoroscopy itself. In addition, StentViz, an advanced software option, can be selected tableside by one touch to enhance the stent visualisation by automatic processing. The StentViz image is computed and displayed within 30 seconds using advanced algorithms to account for rotation, translation and elastic deformation due to the beating heart.



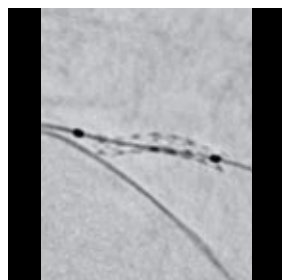
1st StentViz Off



StentViz On



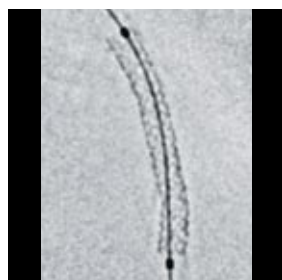
2nd StentViz Off



StentViz On



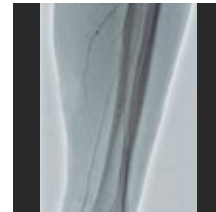
StentViz Off



StentViz On

## InnovaChase™

InnovaChase is a unique unsubtracted imaging mode using DRM processing to show the vessels over bones and anatomic landmarks unambiguously. The acquisition is in very low dose and eliminates the need for subtraction and avoids motion artifacts.



Unsubtracted Innova Chase

# InnovaBreeze™

There is also an acquisition method for high resolution on-line, real time subtracted images acquired with continuous table motion. The subtraction is exact even though the table movement during mask acquisition and injection run may be at different speeds as the operator can chase the bolus using the control room hand switch. Subsequent processing includes paste option and also ROI pixel shift corrections. The table moves continuously for better patient comfort and avoids jerks and repeat runs associated with stepping.

**STEP 1**



A total of 198 cm coverage in a single run.

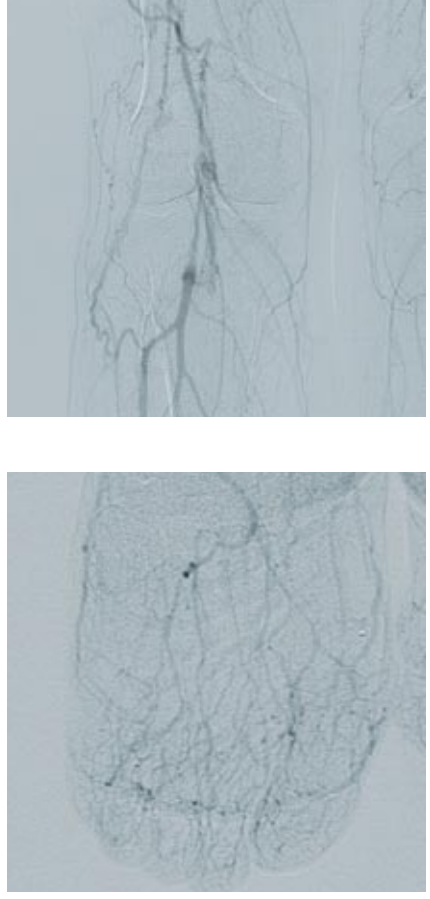
**STEP 2** Advantage Workstation Paste function



High-res DSA images

A single pasted image

**STEP 3** IV - DSA (venogram)



Excellent contrast sensitivity

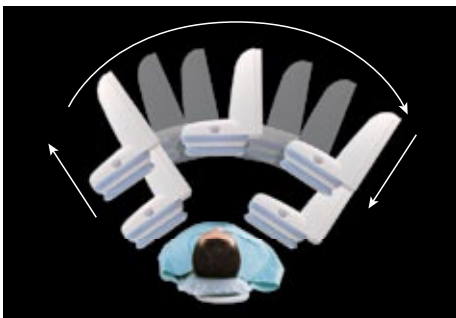
## InnovaSense™

InnovaSense is a robotic patient contouring technology introduced by GE for better procedures, particularly in busy labs where the operator wants automation and collision-free operation. The technology combines a high speed gantry with highly sensitive capacitive collision detection and robotic movement to contour along the patient body at all times, minimising the skin distance and also maintaining speed of angulation.

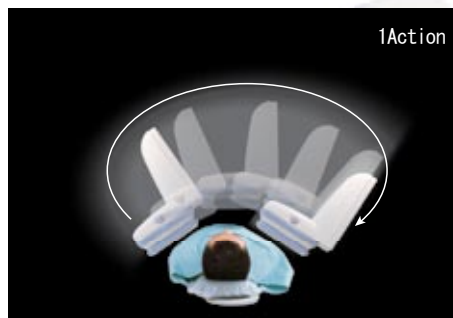
Studies have shown > 30% dose reduction\* to the operator and better image quality with InnovaSense alone. InnovaSense can be turned off for biopsy and designated procedures.

\* Thierry Lefèvre et al; ICPS, France; Reduction of X-Ray Exposure by Patient Contouring. *Circulation*. 2008;118:S\_959

InnovaSense Off



InnovaSense On



# Intelligent Arm

for Easy Access.

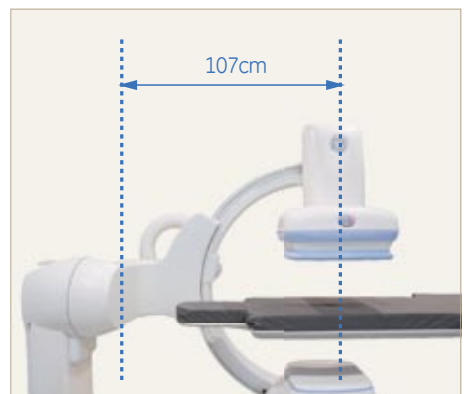
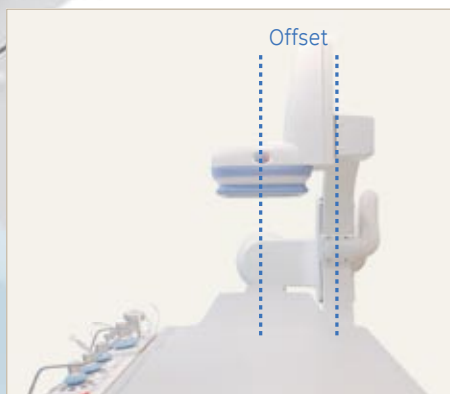


## Quick & Safe



## 3-Axis Offset C-arm

Maximises patient access from all 3 sides, enables the best view every time and allows great headside access. It also has a bigger C-arm depth compared to other gantries.





The Tableside Controller TSSC can be configured for a variety of programmable positions and can be installed also in the control room.

### Smart Handle / Smart Box

Choice of multiple tableside controls including smartbox with joy sticks or smart handle.



### Innova Central

The tableside touchscreen acts as the central control for all functions including protocol selection, review, post processing, QCA as well as control of IVUS and Hemo/EP.

### Fluorostore

The high quality low dose fluoroscopy images can be archived tableside and processed as regular DICOM runs.

### One Touch QA



One Touch QA is an option with Innova Central for QCA to be performed tableside by visualising and marking the region of interest on the touchscreen itself instead of the display monitor.



# Stress-free

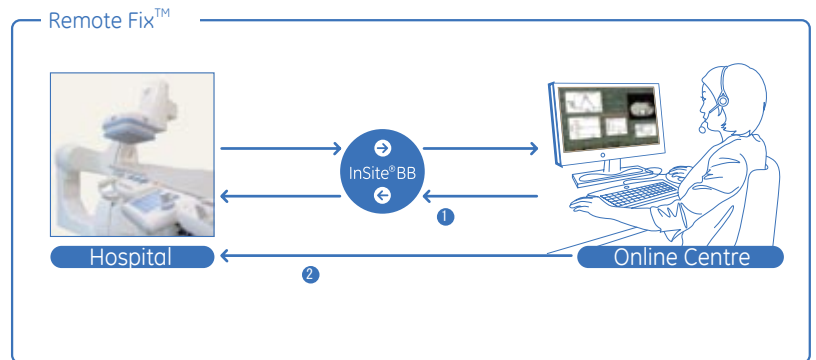
for the Easiest Operation.

# GE Support

Industry-leading service solutions.

## Remote Fix™

InSite remote connectivity enables online monitoring and proactive service including error analysis and remote fix.



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General Electric Company, doing business as GE Healthcare.

Innova IQ Pro is a configuration of the latest Innova 3100-IQ product platform.

## Healthcare Re-imagined

GE is dedicated to helping you transform healthcare delivery by driving critical breakthroughs in biology and technology. Our expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, and biopharmaceutical manufacturing technologies is enabling healthcare professionals around the world to discover new ways to predict, diagnose and treat disease earlier. We call this model of care "Early Health." The goal: to help clinicians detect disease earlier, access more information and intervene earlier with more targeted treatments, so they can help their patients live their lives to the fullest.

Re-think, Re-discover, Re-invent, Re-imagine.

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