Discovery XR656 HD

Digital Radiographic System powered by Helix™

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Introduction

Outstanding image quality & diagnostic confidence at low dose. Effortless precision. Powered by Helix™ advanced image processing.

Are you looking for the best image quality at low dose from the very first X-ray? Are patient comfort, safety and user experience top priorities in your clinical environment?

Discovery XR656 HD is GE's advanced digital radiographic system powered by Helix™ advanced image processing is designed to help you achieve clinical excellence in X-ray, with ease and efficiency.

Outstanding image quality at low dose

Don't miss a thing. Get the diagnostic clarity your need from the first X-ray image with:

- **FlashPad HD** high resolution, CsI, cassette size wireless digital detectors that capture extraordinary anatomical detail at low dose with high DQE of 75% at 0 lp/mm and 100 microns, 5.0 lp/mm resolution
- **Helix**™ advanced image processing that delivers extraordinary anatomical detail and consistent performance in X-ray, despite variations in patient size, exposure technique, collimation, and metal implants

Enhance patient comfort, user experience and workflow efficiency:

- **Auto Image Paste advanced application (optional), enhanced with Auto Spine,** for seamless long bone and scoliosis exams offering outstanding precision and speed at the table and wall stand.
- **AutoRAD** workflow automation suite for fast and easy X-ray exams and effortless patient positioning, featuring Auto Positioning, Auto Tracking, Auto Protocol Assist, Auto Field-of-View, Auto QA, Quick Charge, Quick Share, and Quick Connect capabilities.
- **Bariatric elevating table** with 400 kg static and 320kg dynamic weight limit featuring a spacious table top that lowers to below 50 cm
- **Extensive Patient Safety** features including collision and pinch sensors
- **Redesigned console & user interface** for intuitive and fast operation.

Improve operational efficiency with powerful analytics and advanced service technologies that never sleep

Discovery XR656 HD is compatible with:

- **GE's -ray Quality Application featuring Repeat Reject Analytics.** X-ray Quality App provides web-based dashboards to manage quality assurance, uncover the root cause of rejected X-ray exams, plan targeted training and help reduce unnecessary radiation dose
- **iCenter asset management** software platform designed to help you optimize utilization of your X-ray equipment and balance workload using the full power of healthcare data analytics
- **InSite™ remote service support**. Remote diagnostics and troubleshooting for fast resolutions, often without a field engineer visit.

Discovery XR656 HD Available Configurations

The Discovery XR656 HD is designed to handle standard 2D exams and advanced radiographic applications using GE's wireless flat panel digital detector. Various system configurations are available to align to your department's radiographic requirements.

All systems include: at least a single FlashPad HD detector, Helix advanced image processing, table and/or wall stand, systems cabinet, ceiling mounted tube support, acquisition review workstation, short-term storage, and quick in-room viewing of images.

Main Four Configurations	
Wallstand only system (standard or extended arm)	One GE FlashPad HD wireless or tether detector
Table and wallstand (standard or extended arm)	One GE FlashPad HD wireless or tether detector
Table and wallstand (standard or extended arm)	Two GE FlashPad HD wireless or tether detectors
OTS only system (without Table and Wallstand)	One GE FlashPad HD wireless or tether detector

A full range of accessories is also available, such as: mobile stretchers, weight bearing exam tools, patient table accessories and grids.

Detectors & Image Processing

Digital image acquisition supports fast and efficient exam procedures, eliminating time spent handling film and cassettes, as well as reliability issues inherent in cassette tray systems, thus helping to reduce overall exam times and improve patient satisfaction.

At the core of Discovery XR656 HD is GE's high resolution FlashPad HD wireless flat panel detectors and Helix™ advanced image processing that provide outstanding image quality at low dose for general radiography applications.

FlashPad HD: GE's High-Resolution Flat-Panel Wireless Digital Detector

FlashPad HD detectors are ready when you are thanks to multiple features that enhance workflow:

Quick Share
Hassle-free management of multiple wireless detectors. Once registered, QuickShare allows the detector to work across multiple compatible GE systems with no additional configuration required. Pairing enables registered detectors to connect wirelessly to the host system within seconds.

Quick Charge
In-bin charging, the FlashPad HD detectors charge when they are in the table or wall stand housing. This gives you peace of mind knowing that the detectors will be ready when you need them.

Quick Connect
Adaptive wireless technology enables automatic channel switching to improve image transfer and avoid wireless interference with other equipment on the hospital network

Auto QA
Using the integrated system Quality Assurance Procedure (QAP), image quality checks can be easily performed by the customer. The QAP includes a phantom, optimized for Digital Image Quality testing and is included with the system. System changes are highlighted and can be corrected before they become a problem.

FlashPad Wireless Detector	HD 3543 (14"x17")	HD 2530 (10"x12")
Detector technology	Single panel (non-tiled) amorphous silicon with a Cesium Iodide (CSI) scintillator	Single panel (non-tiled) amorphous silicon with a Cesium Iodide (CSI) scintillator
Dimensions	ISO 4090 cassette size 384 x 460 x 15.5 mm	ISO 4090 cassette size 282 x 332 x 15.5 mm
Pixel Matrix	3524 x 4288	2508 x 3004
Image Depth	16 Bit	16 Bit
Pixel size	100 µm	100 µm
Limiting Resolution	5.0 lp/mm	5.0 lp/mm
Typical Dynamic Range	6 uR –9 mR @ RQA5	6 uR – 9 mR @ RQA5

Typical DQE (RQA5)	75% (@ 0lp/mm) 60% (@ 1lp/mm) 40% (@ 3p/mm)	75% (@ 0lp/mm) 60% (@ 1lp/mm) 40% (@ 3p/mm)
Typical MTF (RQA5)	70% (@ 1lp/mm) 40% (@ 2lp/mm) 15% (@ 4p/mm)	70% (@ 1lp/mm) 40% (@ 2lp/mm) 15% (@ 4p/mm)
Communication interface	Wireless IEEE 802.11n, 5Ghz Ethernet 1000Mbps	Wireless IEEE 802.11n, 5Ghz Tether 100Mbps
Available options include	Wireless, Docked, Tethered	Wireless, Tethered
Max. Load capacity	150 kg distributed weight, 100 kg concentrated weight (45mm diameter area)	150 kg distributed weight, 100 kg concentrated weight (45mm diameter area)
Weight (with Battery)	3.2 kg (7 lbs)	1.8 kg (4 lbs)
Ingress Protection	IPX4 (Protection against splashing water)	IPX4 (Protection against splashing water)
Battery Indicator and Charger	Yes	Yes
Detector Battery Full Charging time	2.5 hours	2.5 hours
Battery Operation Time	4 hours (@ 60 exposures/hour)	2 hours (@ 60 exposures/hour)
Clip-on Grid (Optional)	70 lines/cm,8:1 ratio, focus 130 cm (universal), SID range 90 cm–190 cm 70 lines/cm, 6:1 ratio, focus 130 cm (universal) SID range 85 cm – 190 cm	70 lines/cm,8:1 ratio, focus 130 cm (universal), SID range 90 cm–190 cm 70 lines/cm, 6:1 ratio, focus 130 cm (universal) SID range 85 cm – 190 cm

Helix™ Advanced Image Processing

Helix™ advanced image processing algorithms harness the full high-resolution power of FlashPad HD detectors to deliver exceptional image quality despite challenging exams conditions.

Helix algorithms are designed to deliver outstanding resolution, excellent edge presentation, consistency, and noise handling. The algorithms incorporate the following capabilities:

Image processing	
Auto Shuttering	Automatically detects collimator edges and adjusts to the selected field of view: • ACED (Automatic Collimator Edge Detection) –providing masking of the image. • ICED (Intelligent Collimator Edge Detection) An intelligent algorithm that relies solely on image information to locate collimation edges present in an x-ray image.
Raw Radiation Rejection	Identify raw radiation pixels and improve post processing image display.
Grid Line Reduction	Suppresses grid lines on the image without impacting anatomical details.
Advanced Noise Reduction	Suppresses the mottle noise in denser areas of the anatomy while preserving detail in the rest of the image. The algorithm takes account tissue penetration and dose reaching the receptor.
Multi-resolution processing	Improved edge presentation, exquisite bone detail, differentiation of soft tissues and visualization of metal.

Tissue Equalization	Enhance contrast in thick and thin regions of the anatomy is used to correct over-penetrated and under-penetrated areas within the image.
Smart Windowing	Delivers the correct display brightness and contrast without needing window level and width adjustments, Provides consistent brightness and contrast across variations in exposure technique.
Multiple customizable looks	4 Factory (GE pre-set) image processing selections (looks) optimized for each anatomical view with the ability to define multiple 5 Custom looks for each anatomical view/patient size combination.

Workflow and User Interface

Workflow Features	
Worklist	Customized Worklist column customize Worklist auto-refresh Emergency patient feature – allows user to open exam and acquire images without a worklist entry Patient edit/auto-foldering Bar code reader (Optimal) for patient data entry – can be used for patient selection from the work list
Protocols selection	Set of default adult and pediatric protocols allows quick selection of the appropriate techniques for common procedures/exams with the ability to define unlimited number of custom protocols.
Image management	"Patient Directory" provides fast access to the image and exam database for case reviews and file management Copy exam – allows user to copy patient images into a second patient entry patient entry Read/Write (write once, multiple access) CD/DVD-ROM to be used as an image exchange medium. Images are written to an archive CD/ DVD along with a DICOM viewer.
Image Display and preview	Window width and level Gray scale invert Interpolated zoom with roam Image flips (horizontal, vertical) with automatic indicator Image Rotate – 90° increments Free rotation – 360° Image orientation management L/R markers Free text annotation Manual shuttering
Annotation & Measurement	Full range of measurements tools VOI LUT burn on send System information annotations with configurable font size and display on/off:

	–Hospital/Institution Name –Date, Time (hh:mm:ss) of Acquisition –Measurements (when activated) –Contrast, Brightness Values (WW/WL annotations) –Processing Look –Anatomical View –Exposure Technique including kVp, mA, mAs, and time –Estimated Exposure Dose (Dose area product (DAP)) read out in dGy-cm2 units –Operator Entered Annotations –Patient ID, Patient Name –Patient Age and DOB (date of birth) –Edge annotations
Image reprocessing	Image reprocessing based on anatomy, patient size and view Off center imaging with automatic cropping and manual shuttering capabilities
Image transfer	Compatible with DICOM 3.0 and IHE, the image can be tagged and automatically sent to PACS for storage and to printer for print. This capability is further increasing exam throughput and decreasing examination times for patients.
Print	Orthopedic Magnification/Print Multi-format printing – 1x1, 2x1, 1x2 and 2x2 Print Preview function Auto portrait and landscape print

Customizable Quick Tools

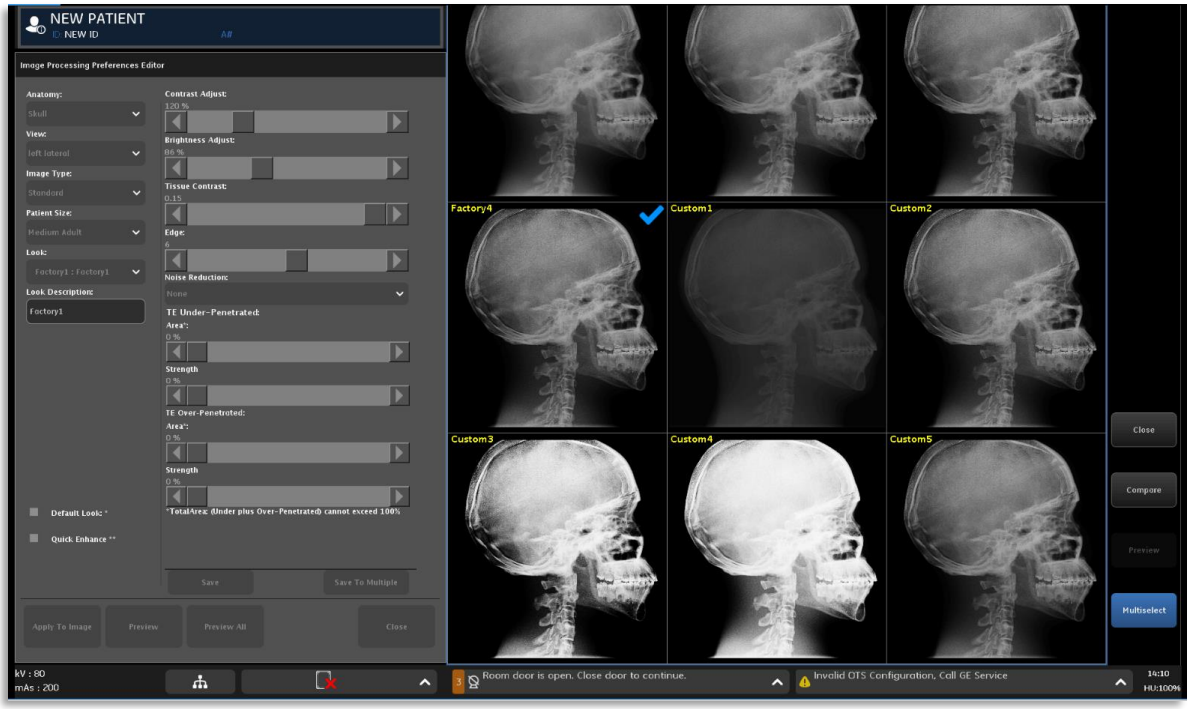
- Customizable menu with quick access tools
- Adapt your Quick Tools bar to include your most frequent operations for enhanced workflow

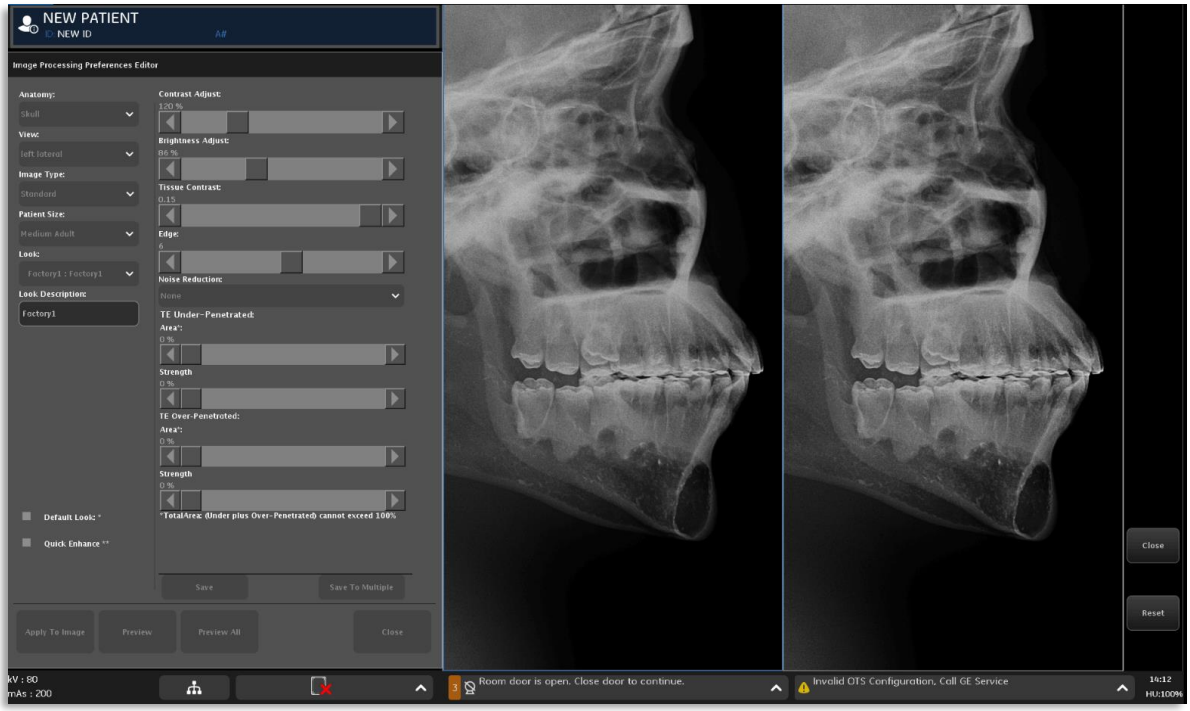
Automatic Reprocess Button for Manual Shutter

-  A Quick Tool function to manually shutter and reprocess image in one click when needed.

Quick Reprocess Function

- Easily preview all image processing looks on one screen
- Select, compare & apply desired look with an intuitive workflow

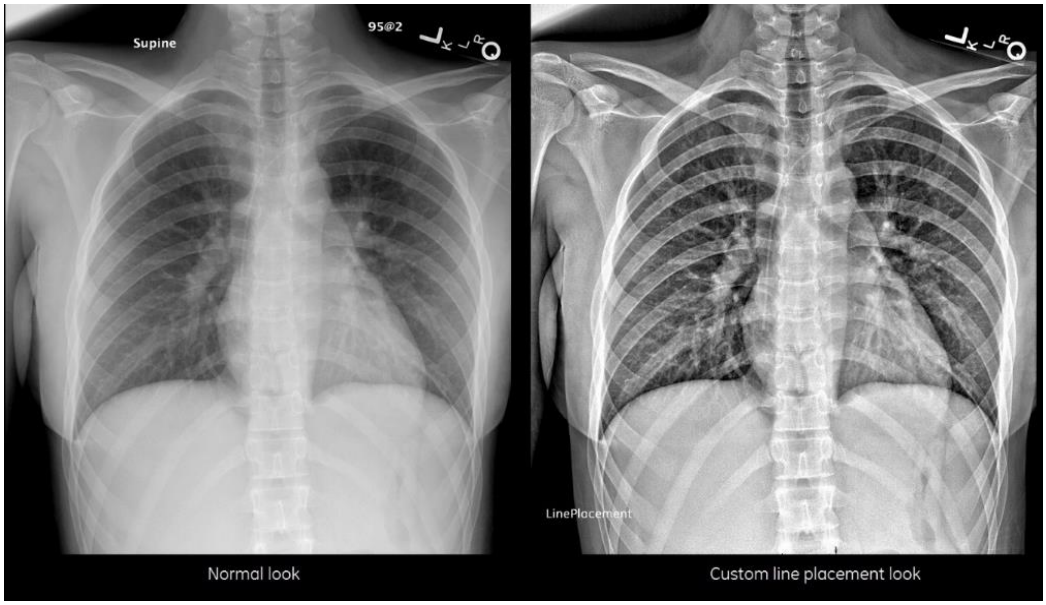




Quick Enhance

A one-touch processing function that can reprocess images for a different custom look with no additional dose to the patient and no additional clicks and steps for the user.

QuickEnhance is customizable by anatomy for multiple uses including instrument check, implant visualization, line placement.



Detector Exposure Indicator

- Detector Exposure Indicator (DEI) is a tool for tracking patient over/under-exposure by estimating radiation exposure behind the patient and is a relative measure of exposure to the detector
- Exposure index (EI) is proportional to detector exposure assuming that the x-ray technique used is the same as that of the calibration technique.
- Deviation index (DI) estimates the deviation of actual detector exposure from target detector exposure.

Repeat/Reject Analysis (optional)

- An automated quality assurance tool that allows for repeat or reject images to be captured and categorized by technologist

Reports can be exported in DVD, CD or USB format for ease of use Discovery XR656 HD is also compatible with GE's X-ray Quality Application featuring Repeat Reject Analytics. X-ray Quality Application is a web-based solution that can connect to multiple compatible radiography systems and help you identify root causes of rejects, enhance training, drive efficiency and help reduce dose.

Auto Positioning Protocol Link

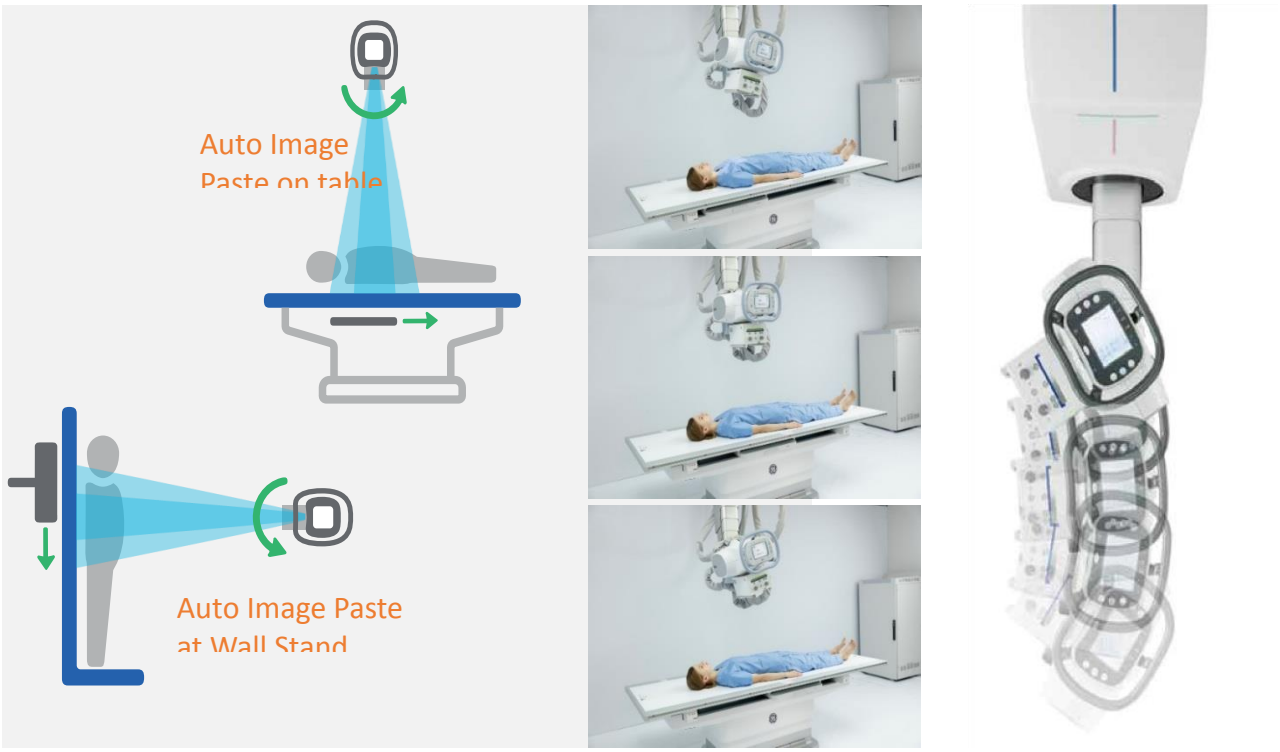
Auto-Positioning protocol link enables pre-determined receptor and corresponding auto-positioning protocol per view.

Auto Field of View

Auto Field of View enables the user to pre-define the collimation size on an individual view basis.

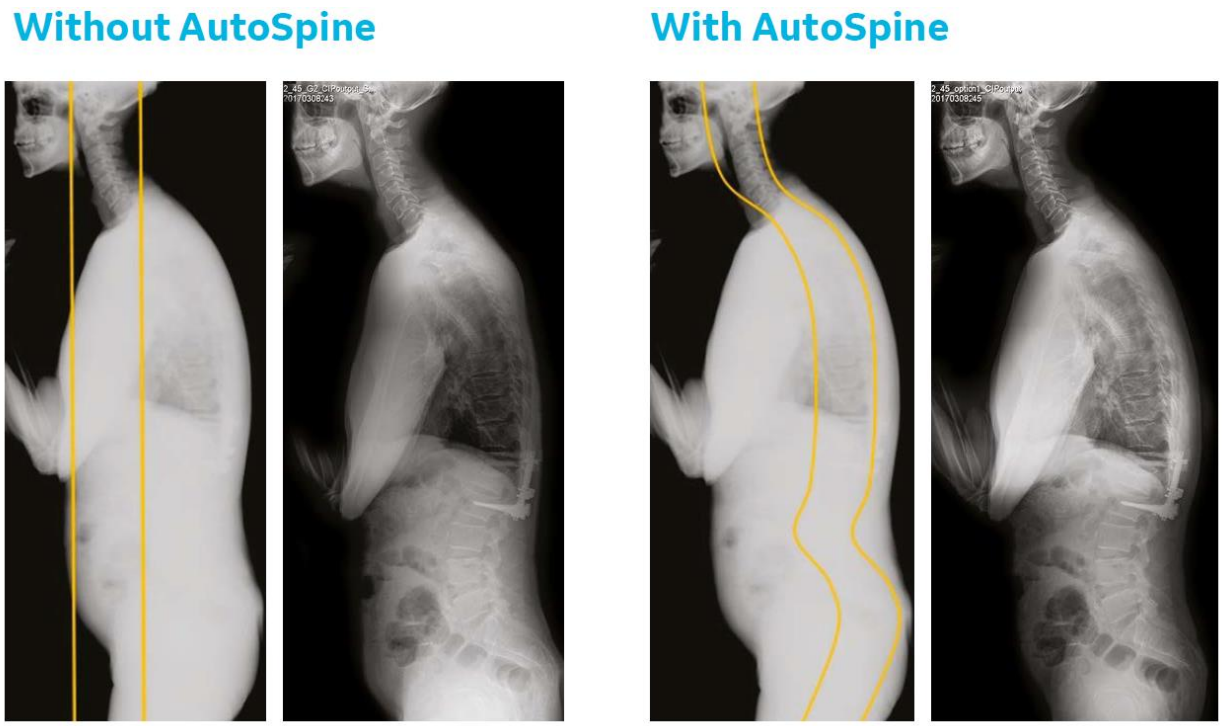
Advanced Clinical Applications

Helix™ advanced image processing and the FlashPad HD detector with high DQE, low noise and high detector acquisition speed allows the Discovery XR656 HD to offer the following advanced clinical application including **Auto Image Paste:**



AutoSpine

Auto Image Paste has been enhanced with **AutoSpine**, an intelligent algorithm that follows the contour of the spine for vertical equalization enabling a natural balance of brightness & contrast along the patient body in lateral spine exams.



Wallstand Auto Image Paste (optional) – Spine and Long Bone Imaging

- Fully automated acquisition and processing of a series of images with user defined start and stop locations on the anatomical regions of interest
- Image pasting and processing time for a 3-image exam is <22 seconds from first exposure.
- Average acquisition time for a 3-image exam (90cm coverage) is <10 seconds
- Allows 2 to 5 images to be pasted together with a maximum range of 150 cm
- Includes imaging of the spine for scoliosis evaluation and imaging of the legs for orthopedic evaluations
- Supports anatomies/view combinations of Spine Antero-posterior, Spine Postero-anterior, Spine Lateral, Leg Antero-posterior, Leg Postero-anterior
- Includes a patient stand with screen help to keep the patient comfortable during acquisition

Table Auto Image Paste (optional) – Spine and Long Bone Imaging

- Fully automated acquisition and processing of a series of images with user defined start and stop locations on the anatomical regions of interest
- Image pasting and processing time for a 3-image exam is <22 seconds from first exposure
- Average acquisition time for a 3-image exam (90cm coverage) is <10 seconds
- Allows 2 to 4 images to be pasted together with a maximum range of 110 cm
- Includes imaging of the spine for scoliosis evaluation and imaging of the legs for orthopedic evaluations
- Supports anatomies/view combinations of Spine Anteroposterior, Spine Postero-anterior, Spine Lateral, Leg Anteroposterior

Acquisition Workstation

The Acquisition Workstation is the primary interface to the network and provides image post-processing capabilities. The System Controller Module provides single point control, directing and coordinating overall system operation, while monitoring all system modules automatically through software.

Workstation Specifications	
Monitor	Non-touch 24 in (61 cm) LCD Color Monitors (1920 x 1200 pixels) >=250 cd/m2 calibrated brightness
CPU	Intel Xeon processor, 3.5 GHz, 4 cores
Hard Disk Storage	1 TB Enterprise-Class SATA
Image Storage	> 17000 images Programmable auto delete function
RAM	16 GB
Image processing times	Fast preview images: <1 second (docked) or <2 seconds (wireless or Tether) Final Conditioned Image including Auto-Shuttering: <6 seconds (docked) or <8 seconds (wireless or tether)
Expose to expose cycle time	< 5 seconds @ 70% HU
Time to boot the system after normal shutdown	<= 180 seconds
System reset time	<= 230 seconds
Image Pasting Acquisition time	< 22 seconds (3 images)

Networking

IHE Compliance for Scheduled Workflow Integration Profile. Images may be transmitted manually or automatically through the DICOM interface to printers, archival devices, servers, or review workstations. System Access and Authorization Control to support HIPAA Compliance

Please refer to the DICOM Conformance Statement for complete definition of supported DICOM connectivity services.

DICOM 3.0 Services	
DICOM Modality Worklist (SCU)	Interface with HIS/RIS with programmable auto refresh
DICOM MPPS (SCU)	Feedback the status of exams to the HIS/RIS
DICOM Storage (SCU)	Manual and auto send image (DX or CR IOD) to multiple PACS
DICOM Storage commitment (SCU)	Send commitment state.
DICOM Query/Retrieve (SCU)	Query/Retrieve images from PACS
DICOM Query/Retrieve (SCP)	Provide Query/Retrieve service instance to other system
DICOM Media Exchange	CD/DVD DICOM image export and import.
DICOM Grayscale Print	Manual and Auto print with print layout options at the console
Verification services	C-Echo as SCU and SCP
DICOM Dose Structure Report (Optional)	Send Dose values for each study to an archiving system.

IHE Integration Profiles	
Scheduled workflow	Acquisition Modality: Patient Based Worklist Query/Broad Worklist Query
Patient Information Reconciliation	Acquisition Modality:
REM (Optional)	Radiation Exposure Monitoring for Dose structure report

- **Minimum Printer Requirements:**
  - 10 and 12-bit printers
  - Printed images are not intended for diagnostic use unless produced with a printer capable of at least 1,000 gradations of gray scale (or at least 10 bits)
  - Several popular printers have been validated for connectivity and image quality. Recommendations are available from your sales representative.
  - Non-DICOM laser cameras will require an upgrade to DICOM connectivity
- **GE Healthnet Services** can provide physical network connectivity solutions – Layer 1 and 2 Ethernet (IEEE 802.3) interoperability – and include network components and physical installation
- **TVA** (Tip Virtual Assist) is a tool that realizes remote desktop sharing; it can support remote application training. (Option.)

Auto Protocol Assist (optional)

System will automatically transition directly to the Acquire screen when the protocol code downloaded from the HIS/RIS (automatically performed with worklist refresh) matches the exam code contained in the protocol database. This tool eliminates the user steps required to select patient exam types and initiate an exam.

Overhead Tube Suspension

The Overhead Tube Suspension (OTS) system with motorized movement delivers excellent levels of operational support designed for efficient operation and precise positioning.

Overhead Tube Suspension	
Motion control	Manual and Auto positioning. 5 axis servo motion. -longitudinal, lateral, vertical, tube angulation and column rotation.
Override mode	Allowing the user to assume complete control for complex or emergency positioning. Two-position key switch remains in NORMAL for automatic functioning. OVERRIDE for manual control.
Auto-Detents	Assisting the user with locating and securing detents
Auto Tracking	Automated vertical tracking to align with Wallstand detector. Automated vertical tracking to maintain Table SID.
Longitudinal travel range	2.3 m (for a 3.4 m rail) 4.7m (for a 5.8 m rail)
Lateral travel range	1m (for 2m bridge) 2m (for 3m bridge) 3.3m (for 4m bridge)
Vertical travel range	180cm. Dual cable safety system and high precision telescoping column.

Tube angulation range	+135/-180 degrees. Continuous rotation with locking at any position. Fix detents at 0, +90, and -90 when selected.
Column rotation range	+/-135 degrees. Continuous rotation with locking at any position.
Longitudinal Speed	Up to max. 30 cm/s
Lateral speed	Up to max. 25 cm/s
Vertical speed	Up to max. 25 cm/s
Tube angulation speed	Up to max. 25 degree/s
Column rotation speed	Up to max. 25 degree/s
Auto Field of View (FOV) selections	7 Default FOV -43 cm x 43 cm (17 in x 17 in) -35 cm x 43 cm (14 in x 17 in) / 43 cm x 35 cm (17 in x 14 in) -24 cm x 30 cm (9 in x 12 in) / 30 cm x 24 cm (12 in x 9 in) -18 cm x 24 cm (7 in x 9 in) / 24 cm x 18 cm (9 in x 7 in)
OTS User Interface	LCD Touch Screen, Auto Horizontal and Vertical UI display for Table and Wallstand application. Providing the following functions to the user: -Lock, Detent Control -Technique Adjust (kVp, mAs) -Receptor Selection (table, wallstand, table top or cassette) -Collimator FOV Selection -Exam Inhibit Display -Position Display (SID, Tube Angle, Column Rotation, Detector Orientation) -Display of Patient Name and Date of Birth for In-Room Verification
Remote Control	Infrared Remote controller (Optional). Auto positioning and FOV Selection

- **Auto-Positioning Package (included in base)**

– Auto-Positioning enables the users to select a predefined system position from the system console and automatically move the equipment by simply holding the “Auto Positioning” buttons. This feature is designed to help reduce user fatigue and increase the productivity of the operator.

– Auto-Positioning will incorporate angulation of the tube, longitudinal, lateral, rotational and vertical positioning of OTS, table detector longitudinal positioning, wallstand detector vertical and tilting positioning

– Auto-Positioning is controlled at the acquisition workstation or with the IR remote control, allowing the user to remain in the room while moving the system

– Auto-Positioning comes with more than 9 default positions. The user can create additional defined positions as needed.

– Pre-set positions at the table, wallstand and park position at various SIDs and vertical and horizontal orientations

– Simultaneous movement of the OTS might be limited in some situations due to safety considerations during auto-positioning

Elevating Table

A bariatric X-ray table enables you to serve the X-ray imaging needs of patients of all sizes and mobility levels.

Elevating Table	
Motion control	Motor driven elevating Manual 8-way floating tabletop Servo motion -Detector longitudinal.
Motion safety	Double-Press Safety Foot Pedal Two safety switches to disable motion during patient transfer Two emergency stop buttons Table anti-collision safety device
Auto Tracking	Yes. Automated Detector longitudinal tracking to align with Tube (including tube longitudinal and angulation)
Tabletop material	Carbon Fiber composite
Tabletop Inherent filtration	<0.7 mm Al equivalent @ 100 kVp
Tabletop size	93 mm x 240 cm (37 in x 94 in)
Tabletop longitudinal travel range	68 cm
Tabletop transversal travel range	28 cm
Detector longitudinal travel range	80 cm
Max. Patient Coverage	Longitudinal 188 cm (74 in) Lateral 68 cm (26.8 in)
Elevating range	50 cm – 85 cm (19.7 in –33.5 in)
Elevation from minimum to maximum height	< 18 seconds
Max. patient weight	400 kg (882 lbs) static non-elevating 320 kg (705 lbs.) dynamic elevating load center
Foot pedal	Liquid proof, Degrees of protection is IP36 High reliability wit parallel switch redundant design

	Front foot pedal as default Rear foot pedal as optional
Footprint	100 cm x 71 cm (39.4 in x 28 in) including foots pedals
Detector housing	Support portrait and landscape exposure for FlashPad HD 35x43
Grid	Removable Grid with handle provided -70 lines/cm,12:1 ratio, focus 100 cm (40 in), SID range 90 cm–120 cm -70 lines/cm, 13:1 ratio, focus 120 cm (48 in) SID range 102 cm – 146 cm -70 lines/cm, 12:1 ratio, focus 110 cm (43 in) SID range of 95 cm–130 cm (Optional)
AEC support	3 Cell Ion chamber.
Table Accessories	Tabletop digital detector holder Patient Hand Grips Compression Band

Digital Tilting Wallstand

Digital tilting Wallstand is designed for use with the wireless digital detector, ion chamber and removable nonreciprocating grid

Digital Tilting Wallstand	
Motion control	Motorized detector housing vertical and tilting movement. Manual detector housing vertical and tilting movement compatible.
Motion safety	Electromagnetic braking secures vertical motion. Anti-collision safety device for titling
Auto Tracking	Auto-tracking detector from the OTS
Foot switch	Vertical motion control.
Remote Control	Infrared Remote controller (Optional). Vertical and tilting motion control.

Information Display Panel	Indicates the Exposure hold, Grid Type, Tilting degree, and System ready status
Min. height from floor to center of detector	28.5 cm
Vertical travel range	150 cm
Max. Patient Coverage	Vertical 192 cm (75.6 in)
Titling range	-20° to 90° -20°, 0°, 90° detent position
Detector housing	Support portrait and landscape exposure for FlashPad HD 35x43
Grid	Removable Grid with handle provided -70 lines/cm,13:1 ratio, focus 100 cm (40 in) SID range 90 cm–118 cm -70 lines/cm, 13:1 ratio, focus 120 cm (48 in) SID range 102 cm – 146 cm -70 lines/cm, 13:1 ratio, focus 180 cm (72 in) SID range 145 cm – 245 cm -70 lines/cm, 10:1 ratio, focus 130 cm (universal) SID range 90 cm–190 cm (Optional) -70 lines/cm, 10:1 ratio, focus 130 cm (universal) SID range 90 cm–190 cm. Horizontal orientation for stretcher, cross table and angulated exams (Optional)
AEC support	3 Cell Ion chamber for standard Wallstand 4 Cell Ion chamber for extended arm Wallstand The standard right, left and center ion chambers are available when the wallstand is in the vertical position. The addition of the 4th ion chamber provides for supine chest and abdominal imaging when a stretcher is used (any time the wallstand housing is horizontal).
Extended Arm Option	34 cm (13.4 in) longer than standard wallstand to accommodate stretcher work
Accessories	Integrated hand grips and lateral support bar for patient comfort and stabilization

X-Ray Generator

The digital radiographic imaging system is available with a high frequency generator.

X-ray Generator	
Nominal Output	50 kW, 65kW or 80 kW
Tube voltage range	40 to 150 kV
Tube current range	10 to 630 mA for 50 kW system, 10 to 800 mA for 65 kW system 10 to 1000 mA for 80 kW system (For Tube small focus Spot: 10-400 mA)
Loading Time range	2 to 2000 ms

Current Time Product range	0.25 to 630mAs For Tube large focal spot: 0.63-630 mAs For Tube small focus Spot: 0.25-500 mAs
AEC max. backup	512mAs and/or 2000ms
AEC Nominal Irradiation Shortest Time (NIST)	2ms

X-ray Source

X-Ray Tube

Maxiray 100 is a high speed, 4-inch (100mm) diameter rotating anode tube unit and inserts for high-energy radiographic procedures. Shockproof housing is constructed of Aluminum and lined with lead to minimize leakage radiation.

X-ray Tube	
Focal Spot Nominal value	0.6 /1.3 (IEC60366)
Target angle	12.5°
Anode rotation speed	10,000 rpm (150 Hz to 180 Hz)
Nominal Anode power	Small focal 32 kW Large focal 96kW
Max. exposure voltage	150 kV
Inherent filtration	Tube Insert: 0.8 mm Al equivalent @ 150 kVp / 75kVp Tube Housing: 0.3 mm Al equivalent @ 150 kVp / 75kVp
Leakage radiation	<= 50mR/h @150 kV, 4 mA
Heat storage Capacity	Anode: 260,000 Joules (350,000 HU) Tube Unit (Housing): 1,110,000 Joules (1,500,000 HU)
Maximum Heat Dissipation Rate	Anode: 75,000 HU/min (925 watts). Tube Unit: 60,000 HU/min (740 watts) with blower operating.
Cooling and protection	The tube unit cooling consists of fan, thermal switch & pressure switch, which helps in cooling the tube to keep the tube within the operating temperature limits.

Weigh	29.5kg

Automatic Collimator

Automatic Collimator	
Inherent filtration	2.0 mm Al @ 70kV
Filed light	LED lamp. Brightness >200 Lux Automatically controls light ON time (0 to 90 seconds configurable).
Centering Indication	Shadow crosshair and longitudinal centering laser line
Copper filters	Without, 0.1 mm, 0.2mm, 0.3mm Be added manually or automatically through protocol set up.
Rotation	>= +/-90°
Collimation control	Manual and motorized, preset through protocol.
Auto FOV response time	<=1 second for complete closure/opening of rectangular blades
Display	Digital readout of FOV at SID
SID measure tape	Yes. It is available for convenient, precise SID measurement of tabletop exam.

Collimator General Operation

- Minimum inherent filtration is 2.7 mm aluminum equivalent @ 71 kVp at a system level (tube + collimator)
- Dose Monitoring: predicted patient entrance dose for each exposure. The exposure dose is displayed as dose area product (DAP; dGy cm2). DAP is automatically annotated onto the digital image for the exposure and is displayed on the acquisition screen post exposure.
- Because this is a predictive method, any additional filtration used in the beam, aside from that provided with the system, will introduce an error in the reported dose. It is recommended that additional filtration not be used when dose reporting is enabled.

Service Options

- **InSite** Remote Service – IIP (Integrated Insite Platform) remote system tool that supports remote communications between customer and GE
- Problems may be diagnosed, resolution expedited, or problem fixed remotely with IIP without the need for a Field Service Engineer be onsite
- **IPM** -Optional Image Performance Manager
- **eLicensing** support

Accessories

Compression band		**Hand grips**	
Lateral detector holder		**Mobile detector Holder**	
Desktop battery charger		**Detector charging bin**	
Clip-on grid (10x12)		**Clip-on grid (14x17)**	
Foot stool for image pasting barrier		**UPS**	
Stretchers	 	**Patient barrier for image pasting**	

Install and Room Considerations

Primary Source Input Power

Primary source is required for all installations. Demand includes power for the entire digital radiographic imaging system.

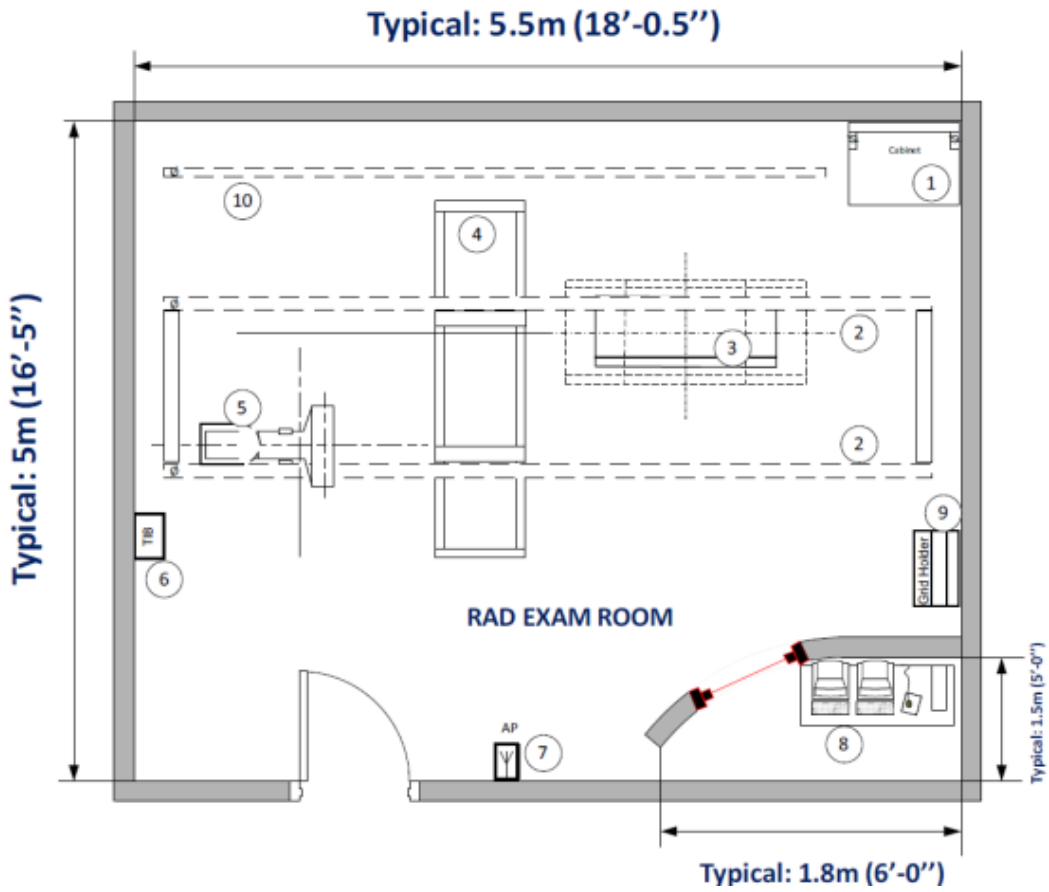
Primary Source Input	
Input voltages	Three phases with/without neutral. 380, 400, 420, 440, 460 and 480 VAC ± 10%. 50 Hz or 60 Hz
Input current	170A (Momentary), 4.5A (Continuous)
Input power	112kVA(Momentary), 2.2kVA (Continuous)
Energy consumption:	Current input: 2A, power input 1.0 kVA when system in standby.

Environmental Conditions

Environmental Conditions	Operating	Non-Operating
Altitude	-30 m to +3,000 m relative to sea level	-30 m to 3,000 m relative to sea level and support non-pressurized air transport
Temperature	15°C to 32°C	-20°C to 60°C (System except detector) -5°C to 50°C (Detector)
Humidity	20% to 75% RH, non-condensing	10% to 85% RH, non-condensing
Atmosphere Pressure	106 kPa to 70 kPa	106 kPa to 70 kPa
Audible Noise (1 meter from system)	<=60 dBA during motion	NA

Typical Room Layout

Recommended Room Height: 2.9m (114”), Minimum Room requirement refer Pre-installation Manual.



1	System Cabinet	6	Tether Interface Box
2	Longitudinal Station Rails	7	Access Point
3	Detector + Table	8	Magic PC + Monitors
4	OTS and Bridge	9	Grid Holder
5	Detector + Wallstand	10	Cable Rail

Compliance to Standards

The Discovery XR656 HD digital radiographic imaging system is designed to meet applicable performance standards for diagnostic X-ray equipment enunciated by the U.S. Department of Health and Human Services pursuant to the Radiation Control for Health and Safety Act. In addition, the system complies with UL, IEC requirements.

Warranty

The published company warranty in effect on date of shipment shall apply. Right reserved to make changes.

About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter – great people and technologies taking on tough challenges. From medical imaging, software and IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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