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Discovery XR656 Plus Base System with Single FlashPad Detector

The Discovery XR656 Plus is an advanced digital radio graphic imaging system that provides excellent image quality, a variety of image manipulation and post-processing tools as well as the option to utilize GE Healthcare's exclusive advanced clinical applications. Powered by FlashPad, GE's wireless digital detector, workflow is streamlined with a SINGLE portable detector that can be used in the table, wall-stand or freely to best accommodate most 2D exam requirements as well as advanced radiographic requirements.

At its core, the Discovery XR656 Plus delivers improved productivity through an efficient and intuitive workflow. The base system comes equipped with a systems cabinet, acquisition review workstation, image processing tools, short-term storage and quick in-room viewing of images. Also included is a host of networking and connectivity options, dose reporting, and system maintenance. These features are designed to make this system easy to use and reliable while providing high quality radiographic images in a digital environment.

The Discovery XR656 Plus's core feature set can help streamline even the toughest exam. Consistent image quality helps reduce retakes, and unique image processing helps save time. With DICOM connectivity, the Discovery XR656 Plus connects easily to HIS, RIS or PACS for efficient data transfer.

The Discovery XR656 Plus base system includes:

GE's Exclusive FlashPad Wireless Digital Detector:

Wireless Digital Detector with batteries and optional tether

- Single panel (non-tiled) amorphous silicon detector with a Cesium Iodide scintillator and two handgrips that facilitate easy positioning and a secure grip.
- Wireless connectivity through Ultrawide Band Technology for fast, efficient and secure communications between the detector and the base system.
- Image area 40.4 cm x 40.4 cm (15.9 in. x 15.9 in.)
- Active matrix 2022 x 2022 pixels.
- Pixel pitch 200 microns.
- Typical upper dynamic range 7.8 mR @ RQA5.
- Typical DQE 68% @ 0lp @ RQA5.
- Weighs 4.32 kg (9.52 lbs.) without battery, 0.18 kg (0.40 lbs.) battery weight.
- A 6:1 clip-on grid for FlashPad detector.
- Dimensions: L 580 mm, H 452 mm, T 24 mm.

- Can support up to 160 kg (352 lbs.) of distributed load.
- Battery or tether operated. Includes two rechargeable and exchangeable batteries and 7 m cable (4 m or 10 m optional) for optimal connectivity and power.
- Battery allows for 150 images to be taken in 3 hours.
- QAP (Quality Assurance Procedure)
- FlashPad detector can support Advanced Applications that are available on the Discovery XR656 Plus.

Acquisition Workstation

The Acquisition Workstation includes:

- Two 19-inch Flat Panel Monitors that help desktop space required.
- Keyboard and Mouse
- CPU Tower with 6 GB RAM, 320 GB of hard drive storage and capacity for over 22,000 images.
- 120/140 VAC, 50/60 Hz.
- Easy Image Manipulation and Image Display which include:
 - Window width and level
 - Gray scale/contrast invert
 - Interpolated zoom and roam
 - Image flips (horizontal, vertical) with automatic indicator
 - Image Rotate - 90 degree increments
 - Free rotation - 360 degrees
 - Image orientation management
 - Electronic Left/Right Markers
 - Free text annotation
 - Manual shuttering
- Image Annotations and Measurement Tools
- Multi-Resolution Post Processing
- Customizable Image Processing to Match
- User Preferences
- CD-RW and DVD Drive for Image Archive
- Image Viewer on Archive CD's and DVD's

Acquisition Control System

- Single Point System Control and Monitoring.

- Auto-Protocol Programming: comes with default set of exam and view protocols and the ability to build an infinite number of exams or views through the editor function. User also has the ability to attach acquisition protocols.
- System manager allows equipment error logging and provides resident power up diagnostics.
- kVp selections range from 40-150 in 1-kVp increments.
- Focal Spot Sizes of 0.6 and 1.2 mm - mA

Patient Management

- DICOM Modality Worklist for HIS/RIS
 - SCU (with programmable auto refresh)
- Patient edit/auto-folding (Copy exam)
- Patient Dose Reporting Calculated Dose Monitoring (mGy)
- "Patient Directory" provides fast access to the image and exam database for case reviews and file management.
- Detector Exposure Indicator: tool for detector dose feedback to ensure exposure was within normal limits.
- Emergency Patient Exam Capability Emergency patient feature - allows user to open exam and acquire images without a worklist entry.
- The Copy Patient function allows merging of the patient information with the exam images.
- Fast Image Display - Average time for a partially processed image is approximately three seconds and less than eight seconds for fully processed images. Times may vary based on how the detector is connected to the system (i.e. docked, tethered or wireless)
- 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.
- Set of four Factory (GE pre-set) image processing selections (looks) optimized for each anatomical view with the ability to define multiple Custom looks for each anatomical view/patient size combination.
- Automatic image storage and print with DICOM 3.0 and IHE Compliant networking, further increasing exam throughput and decreasing examination times for patients.

Image Quality and Dose

- Multi-resolution image processing capability
- Tissue Equalization used to correct over penetrated and under-penetrated areas

within (Smart Windowing) the image.

- Auto and manual image shuttering cropping tool.
- Automated brightness/contrast setting (Smart Windowing)
- Orthopedic Magnification/Print
- Detector Exposure Index (DEI) dose tracking and QC metric.
- Dose Area Product (DAP) - dose entrance metric.
- Grid Line Reduction (selectable)
- Intelligent Collimator Edge Detection automated, image based cropping/shuttering tool that relies solely on image information to locate the collimator edges present in the image.
- Orthopedic Magnification/Print

DICOM and Standard Networking Capabilities

Images may be transmitted manually or automatically through the DICOM interface to printers, archival devices, servers, or review workstations.

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

Networking Capabilities include:

- Ethernet Network Link - DICOM 3.0.
- DICOM Storage (with auto-send to different locations)
- DICOM Storage Commitment (with programmable auto delete function)
- DICOM Modality Worklist for HIS/RIS (with auto refresh)
- DX/CR Worklist Filtering.
- DICOM Media Interchange on DVD-R.
- DICOM Modality Perform Procedure Step (MPPS) feedback to the HIS/RIS (SPS PPS)
- DICOM Grayscale Print (with print layout at the console)
- DICOM Query/Retrieve (retrieves images back from PACS)
- System Access & Authorization Control to support HIPAA Compliance.
- Full Range of Printing Options.
- Numerous Layout and Format Options.

Systems Cabinet

- Built-in System Distribution Power Module and Circuit Breaker for Single Point Power Feed to Room Subsystems.
- Modular Designed X-ray System Based on a Digital Communications Network

for Improved Reliability and Image Quality.

Quality Control/System Reliability Features

Preventing customer experienced system failures and reducing unplanned system downtime as critical.

The following features help to achieve these goals:

- 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.

2	1	2, 3 or 4 Meter Longitudinal Drive Belt Kit
3	1	2, 3 or 4 Meter Longitudinal Rail Select (Dependent on Room Size)
4	1	2, 3 or 4 Meter Bridge Select (Dependent on Room Size)
5	1	2, 3 or 4 Meter Bridge Cable Select
6	1	2, 3 or 4 Meter Bridge Cable Drape Select
7	1	Required System Language Labels - English
8	1	<p>80kW High Frequency Generator, 50 or 60Hz The high frequency 80kW power unit is designed for radiographic applications and utilizes microprocessor controlled power and parameter adjustment</p> <p>Specifications:</p> <ul style="list-style-type: none">• 1000mA at 80kVp• 800mA at 100kVp <p>Input Power: 360-480VAC, 3 Phase, 60Hz</p> <p>kVp Range: 40-150kVp, 1kVp increments</p> <p>kVp Accuracy: 3% +/-2kVp mA Range:</p> <ul style="list-style-type: none">• Small Focal Spot: 10-320mA• Large Focal Spot: 160-1000mA
9	1	Table Top Lateral Detector Holder

Wireless DR detector holder, designed specifically for GE, secures the detector in a vertical position on the tabletop for cross-table imaging.

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Table Rear Foot Pedal

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Discovery XR656 Plus Tilting Wallstand with Extended Length Arm

Discovery XR656 Plus Digital Tilting Wallstand is designed for radiography applications with the patient standing, sitting or lying on a gurney.

The Discovery XR656 Plus wallstand is designed for use with GE's exclusive FlashPad wireless digital detector, overhead tube suspension, ion chamber and removable non-reciprocating grid. The FlashPad wireless digital detector can be operated docked, tethered, or in a wireless digital cassette mode.

- The wallstand is motorized Electromagnetic braking secures vertical motion.
- Motorized receptor tilting controlled with either IR remote control or hand switches located on the arm. 0 Vertical motorization of the wallstand with foot switch or IR remote control.
- Auto-tracking from the overhead tube suspension.
- Graphic outlines of image sizes and ion chamber scan areas on the front panel enhance accuracy and safety. Preparation is fast and simple for better patient throughput.
- The wallstand tilts from -20 degrees to 90 degrees
- The wallstand grids are removable from the side.
- It is configurable for either left or right side insertion.
- The wallstand comes with two removable hi-line rate fixed grids for optimum scatter cleanup and aluminum interspacing for image quality uniformity:
 - 100 cm (40 in.) focus grid with a SID range of 90 cm - 118 cm (70 lines/cm, 12:1 ratio)
- 180 cm (72 in.) focus grid with a SID range of 145 cm - 245 cm (70 lines/cm, 13:1 ratio)
- Automatic Exposure Control (AEC) utilizes three ion chamber sensors, which are mounted between the patient and digital detector.
- Automatic Exposure Control (AEC) on this extended arm utilizes three ion chamber sensors which are mounted between the patient and digital detector on the wallstand. The addition of the 4th ion chamber provides for supine chest and abdominal imaging when a stretcher is used (anytime the wallstand housing is horizontal). The standard right, left and center ion chambers are available when the wallstand is in the vertical position.
- Includes patient handgrips and a lateral support bar.

12	1	<p>Mid-Range Wallstand Grid</p> <p>- 130 cm (51 inch) focus - 10:1 ratio, 70 lines/cm - Used for SID ranges from 90 to 190 cm</p>
13	1	<p>Dual Energy Subtraction Chest and Abdomen</p> <p>Dual Energy Subtraction is an Advanced Clinical Application.</p> <p>Provides three diagnostic images:</p> <ul style="list-style-type: none"> • Standard • Soft tissue only • Bone only • Technique is available for PA/AP chest and abdomen imaging.
14	1	<p>VolumeRAD at Wallstand and Table with Extended Arm (4 sweeps)</p> <p>VolumeRAD is an advanced application for radiographic X-ray imaging. It allows retrospective reconstruction of a number of planes (slices) from a series of low dose exposures acquired within a limited angular range. These slices show anatomical structures at different depths</p> <p>This application supports the following four sweeps at wallstand:</p> <ul style="list-style-type: none"> • Table Horizontal sweep of the tube over the table for prone or supine imaging • Vertical tube sweep at the wallstand for upright imaging • Horizontal sweep of the tube over the stretcher for prone or supine imaging (requires the selection of the extended arm wallstand) • Lateral tube sweep at the wallstand for cross table imaging over the stretcher for prone or supine imaging
15	1	<p>Repeat and Reject Analysis for the Discovery XR656</p> <p>The Repeat and Reject Analysis (RRA) software package is a quality control (QC) application available for the Discovery XR656 that allows for repeat or reject images to be captured and categorized by technologist. It is designed to help track and analyze the X-ray repeat rate</p> <ul style="list-style-type: none"> • The easy-to-use operator interface helps technologists classify each image they reject and to select a specific reason for the repeat /image rejection. • RRA can be a helpful teaching tool because it includes links to actual JPEGs of the rejected images to help the user analyze why the image was rejected. • The RRA application tracks the rejected image data by operator, exam type, date and reason code.

		<ul style="list-style-type: none"> • Reports can be exported in DVD, CD or USB format for ease of use.
16	1	<p>Auto Protocol Assist for the Discovery XR656</p> <p>Auto-Protocol Assist - the Discovery XR656 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.</p>
17	1	<p>Wallstand Auto Image Paste for Spine and Long Bone Imaging</p> <ul style="list-style-type: none"> • Fully automated acquisition and processing of a series of images with user defined start and stop locations on the anatomical region of interest. • Average acquisition time for a 3-image exam (90 cm coverage) is less than 10 seconds. Image pasting and processing time for a 3 image exam is less than 15 seconds from last exposure. • 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 to keep the patient comfortable during acquisition.
18	1	PATIENT ORI-TAG PERMANENT
19	1	<p>25 KAIC X-Ray Main Disconnect Panel 80 Amp, 480 V / 208 V</p> <p>FEATURES/BENEFITS</p> <ul style="list-style-type: none"> • Serves as the main power disconnect between the X-Ray system and the facility 480V or 208V power source • Provides emergency shut down, undervoltage protection and overcurrent protection for the X-Ray power distribution cabinet • Standardized design provides a platform for future upgrades of the system • Offers a number of advantages by combining a variety of individual components into a single pre-engineered and factory tested panel • UL and cUL listed for compliance with NEC Article 100 and Article 110-3 • Remote emergency off pushbutton located by X-Ray control provides immediate shut down of the entire system to comply with NEC required disconnecting means

- Surface or semi-flush mounting

SPECIFICATIONS

- Dimensions (H x W x D): 48" x 20" x 6.68"
- Weight: 80 lbs.
- Mounting: via keyhole slots; Width is 16" on centers, Height is 45.5" on centers

COMPATIBILITY

- GE Three Phase X-Ray generators

NOTES:

- Customer is responsible for rigging and arranging for installation with a certified electrician
- ITEM IS NON-RETURNABLE AND NON-REFUNDABLE

20	1	<p>6 Day XR System Training</p> <p>One 4 day and one 2 day TiP Onsite Training visits for the X-ray system.</p> <p>Includes T&L expenses. Days provided consecutively.</p> <p>This training program must be scheduled and completed within 12 months after the date of product delivery.</p>
21	1	<p>4 Day XR System Training</p> <p>Two 2 day TiP Onsite Training visits for the X-ray system.</p> <p>Includes T&L expenses. Days provided consecutively.</p> <p>This training program must be scheduled and completed within 12 months after the date of product delivery.</p>
22	1	<p>Revolution Digital Rad Systems (Class/Lab)</p> <p>The Revolution Digital Rad Systems service training consists of an online course & 1 week of in-residence class and labs. The systems taught in the course include: Revolution XQI, Revolution XRd (Gipeto), Revolution XRd-2x (Lightning), Definium 8000 (Thunder), Optima XR640, and Discovery XR650. This course must be taken within 2 years from the purchase date.</p>
23	14	<p>Meals and Lodging Expense has been developed to allow the customer the convenience of prepaying for their meals and lodging expenses when attending Technical Service Training at the GE Healthcare Institute located in Waukesha, WI.</p>

The price of this convenience is based on a per day basis. Thus a quantity of 1 is equal to 1 day's meals and lodging expense. When purchasing the meals and lodging expense please be mindful of weekend days during the training stay and include 2 days to cover a weekend in the purchase quantity.

Examples: A 5-day course needs a quantity of 5. Any course longer than 5 days should include 2 days to account for the weekend stay. Any course longer than 10 days will require an additional 4 days of the meals and lodging expense to cover the 2 weekends of the stay. Thus a 15-day course would have a quantity of 19 days to cover the 2 weekends of the stay. This expense must be used within 2 years from the purchase date.

Three meals a day Monday thru Thursday, 2 meals on Friday, plus breaks are provided in the onsite cafeteria. The GE Healthcare Institute cafeteria closes Friday after lunch and reopens Monday morning for breakfast. Weekend meals are the responsibility of the customer.

Only for In-resident courses to be taken at the GE Healthcare Institute.

24 2 The AIRFARE EXPENSE has been developed to allow the customer the convenience to prepay their roundtrip Airfare expenses when attending Technical Service Training at the GE Healthcare Institute located in Waukesha, WI. To be used for engineers attending In-Resident Class/Lab courses for Diagnostic Imaging.

Customer will make their Airfare arrangements thru the GE Travel Center. Specific directions will be provided to the customer upon confirmation of class. Please note that this expense must be used within 2 years of the purchase date

25 1 Lodging Weekend Expense
Weekend Lodging Expense is to cover Saturday and Sunday lodging expenses for those engineers who are staying at the Rivers Edge Condos while attending Diagnostic Imaging Biomed training at the Healthcare Institute. Please note that there are no meals included on the weekend. Must be used within 2 years from the purchase date.

26 1 Discovery XR656 Differences Training
The Discovery XR656 Differences training is a web based course. It highlights what is new and unique with the Discovery XR656 system, FlashPad and associated components compare to the Discovery XR650 system. It is designed for the engineer who has previously completed training on the Discovery XR650 system. Moving forward content on the Discovery XR656 as well as the the Discovery XR650 will be included in the Digital Rad Systems course R0122RY. This course must be taken within

2 years from the purchase date.

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X-RAY BASIC SERVICE (WEB)

This course is a prerequisite to R0182RY and is included in the purchase of the In-residence course. This course consists of 2 sections: Prerequisite and Reference course material. Prerequisite course material includes: Radiographic basic applications and Fluoroscopic basic applications. Reference course materials include: X-ray principles, Radiographic components, Fluoroscopic components. Studying the prerequisite course material and passing the 2 tests is required before attending R0182RY X-RAY BASIC SERVICE in-resident course. This course must be taken within 2 years from the purchase date.

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X-RAY BASIC SERVICE (CLASS/LAB) (9 Days)

The X-RAY BASIC SERVICE in-resident course will equip the engineer with the theory and physics of x-ray and the ability to operate and identify x-ray systems at a basic service level. The in-residence course will provide classroom instruction as well as hands-on lab training on a variety of R&F systems. The purchase of this course doesn't include the online course R0181RY which must be complete before attending this course. This course must be taken within 2 years from the purchase date.

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Connection cables for the wallstand

**Trade-In Philips Serial #5010232
RM G-15**

Options

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Simple and ergonomic design, but also robust, to withstand intensive hospital use.

Two fixing PINS that give the following advantages:

- To fix the table always at the same location (very useful for auto tracking options).
- Working with table single detector, to remove the table by turning around one pin to work with the wall stand.

Flat carbon fiber tabletop to increase patient comfort and to assure high contrast radiographies with minimal patient dose. The tabletop can be displaced in four directions.

Tabletop rails allow an easier attachment of its accessories.

Variable height that allows an easy and quick positioning of all kind of patients.

Two manually-activated tabletop safety locks.

Immobilization of the tabletop even when switched off. Allow tabletop movements without battery consumption.

Four wheels to move the patients without removing them from the support on which the radiological examination takes place.

Different wheels positions for easier movement control.

Locks above the wheels to limit table movements.

Anti-collision system for the raising movement with automatic stop of the digital detector (Auto tracking).

Rechargeable batteries inside the table base. It does not need power supply cable for operation.

Power supply cable inside the table only used for batteries recharging (IEC). Universal charger.

Battery level indicators.

- Buzzer alarm when batteries become low level.
- Three different colored Led indicating battery level.

Key Specifications

Max table height 1000mm (39.37 in.)

- Min table height 600mm (23.40 in)
- Inherent filtration: 0.65 mm Al @ 100kVp

- Max. patient weight: 200 kg (440 lbs.)
- 895 mm width x 2436 mm length (35.25 in. x 95.91 in.)
- Tabletop longitudinal travel +/- 790mm (+/- 31.1 in.)
- Tabletop transversal can be adjustable between +/- 80mm (+/- 3.14 in.) and +/- 91mm (+/- 3.58 in.)