

COURSE OBJECTIVES:

During this course the engineer will be provided with information on:

- Configuration and product structure of the Eleva Systems.
- (Pre) installation and setting to work
- Safety aspects
- Simplified block and system diagrams
- Planned and corrective maintenance

He will learn how to:

- Install the system with the help of the SMI
 - Work with the service tool Field Service Framework
 - Work with EVA and perform basic EPX parameter adjustments
 - Set up Velara generator using service tool Agent
 - Perform mechanical and imaging adjustments
 - Perform corrective maintenance on FRU-level
 - Operate and configure ViewForum
 - Handle service software programs
 - Connect the system to a local hospital network (RIS, printer and PACS)
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Line #	Part #	Description	Qty	Each	Price
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1	**	DS MultiDiagnost Eleva F.D.	1		
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LIMITED AVAILABILITY BASED UPON RECEIPT OF CONTINGENT FREE ORDER AT THE FACTORY. CURRENT AVAILABILITY OF THIS OFFERING IS 120 DAYS ARO, SUBJECT TO AVAILABILITY AND PRIOR SALE.

NOTE: IF CUSTOMER IS UNABLE TO ACCEPT DELIVERY BY THE ABOVE STATED ARO DATE, THEN PHILIPS MAY DETERMINE A REVISED DELIVERY DATE.

Diamond Select MultiDiagnost Eleva with F.D.

The MultiDiagnost Eleva FD-MX is a multi-purpose C-arm based digital X-ray system for routine R/F examinations, dedicated vascular and non-vascular diagnostics and interventional procedures.

The MultiDiagnost Eleva FD-MX is equipped with Philips' latest dynamic Flat Detector that provides excellent image quality at the lowest possible patient dose.

With its customizable Eleva concept the MultiDiagnost Eleva with Flat Detector increases productivity by adapting the system to the way you work. The system can be easily integrated in today's hospital and departmental workflow requirements.

Comprising:

- Tilt-C arm stand
- Flat Detector 30 x 40 cm subsystem
- Eleva control
- User Interface

Tilt C-arm stand

The tilting table with integrated C-arm facilitates compound beam projections, and allows versatile patient positioning.

The stand features:

- Philips' unique scanning concept of a moving C-arm and a fixed tabletop - No patient movement
 - Increases patient safety
 - Increases patient comfort
 - Sterile design, e.g. under-the-table C-arm ensures sterility in lateral projections both in AP and PA setting
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- BodyGuard anti-collision system automatically senses patient body position and size in order to take safely advantage of the system's rojection flexibility

Stand specifications:

- Single side suspended tabletop at the right or left side of the system
- Carbon fiber table top with dimensions of 227 x 56 cm (89 x 22") and a maximum patient load of 200 kg (441 lbs)
- Tabletop height adjustment with a step up height of 60 cm (23")
- Longitudinal table tilting from +90 to -20 degrees Trendelenburg
- C-arm that can be positioned in PA (detector over table) or AP (detector under table) projection
- Longitudinal C-arm scanning range of 160 cm (63") for full body coverage (patient coverage 198 cm (78"))
- Lateral C-arm scanning range of 40 cm (15.7")
- Isocentric C-arm rotation of 90 degrees LAO to 90 degrees RAO
- C-arm angulation of 45 degrees cranial to 45 degrees caudal
- SID range of 95-125 cm (37-49")
- Flat Detector / table top clearance of max. 81 cm (32") for optimal patient access

Flat Detector Subsystem

Flat Detector subsystem, with 30 x 40 cm Flat Dynamic X-Ray Detector

- Maximum field of view: 30 x 38 cm (landscape mode) or 38 x 30 cm (portrait mode)
- Image matrix: 2480 x 1920 pixels at 14 bits depth
- Detector zoom fields: 30 x 30 cm, 22 x 22 cm, 16 x 16 cm
- Pixel size: 154 um
- Detector bit depth: 14 bits
- Detector quantum efficiency: 73% at 0 lp/mm

The Flat Detector is provided with a refresh light to eliminate ghost images (provide temporal artifact-free images).

To provide the best flexibility between image coverage, stand projection and patient accessibility, the Flat Detector has a 90 degrees pivot and supports landscape-mode and portrait-mode image acquisition.

Measuring fields are customizable per application as well as user selectable.

Collimation of the X-Ray beam can be performed on the Last Image Hold image to adjust the position of the shutters without X-Ray radiation.

Eleva concept

The customizable Eleva concept increases productivity by adapting the system to the way you work: the system reforms to the users specification from pre-exam to archive. To support varying workflow patterns (from high throughput exams to time consuming procedures) and increase overall efficiencies, the Eleva concept features:

Customizable system pre-sets like SpectraBeam RF filter selection (option), measuring field selection and default collimator settings

Bi-directional RIS coupling (option) automatically activating the appropriate Eleva system pre-sets to increase exam efficiency even more

Revolutionary User Interface Concept, including several modules:

- Eleva Examination Control (control room)
- Keyboard & Mouse (control room)
- Handswitch (control room)
- Eleva Nearby Stand Control on pedestal (examination room)
- Eleva Footswitch (examination room)

Eleva Examination Control (touch screen):

The Eleva Examination Control (incl. keyboard) integrates all functions for patient administration, selection of acquisition and fluoroscopy parameters as well as all controls for operating the different subsystems in one desk. The easy to use touch-screen provides convenient, logical and ergonomic arrangement of controls and displays. It supports the philosophy that only those controls and related displays are active that are required for a certain type of examination.

The system user interface offers facilities for:

- Patient and examination administration

Preparation:

- Manual entry of patient data of RIS worklist (DICOM) (optional)
- Display of user-defined help text for room preparation and procedure

Examination:

- Automatic selection of system settings according to scheduled examination from RIS
- Automatic adaptation of X-ray parameters depending on patient age, size and weight retrieved from RIS
- Display of dose-information and current actual dose rate, accumulated during course of examination and per exposure run (option). Patient area dose values on image level providing insight on the dose needed for acquiring an image on a View/Workstation
- Automatic lay-out of image sets according to the user's preferred method of presentation and interaction for different type of viewing circumstances (hanging protocols)

Reporting:

- Printouts of dose report (optional)
- Support of DICOM MPPS (optional)

Selection of acquisition parameters, like:

- Auxiliary selection and indication
- Selection and display of exposure parameters
- Selection of parameters for special examinations like bolus chasing, total legs and full spine scan, etc. (optional)
- Selection of predefined acquisition programs
- Selection of different frame rates for Grid Controlled Fluoroscopy
- Selection of spectral filters for fluoroscopy and exposure (optional)

Eleva Nearby Stand Control (incl. pedestal)

To operate the system at the table side, either mounted on the pedestal or anywhere on the tabletop of the system.

For nearby operation of:

- All stand movements, store / recall positions, AP/PA change, etc.
- Operation of main imaging functions, fluoroflavour selection, detector zoom field selection, collimator control
- 90 degrees Flat Detector pivot for portrait or landscape acquisition

Eleva Footswitch (examination room)

- For exposure and fluoroscopy control

Eleva Handswitch (control room)

- Ergonomic handswitch for exposure control

Accessories

Many accessories are available as option to support the systems' multifunctional capabilities.

Clinical packages

Clinical packages are available to optimize the MultiDiagnost Eleva with Flat Detector system for dedicated applications or multifunctional use. One of the optional clinical packages must be selected to complete the system.

Optional: 3D-RX

Clinical Education Program for R/F Systems

Handover OnSite Education: Clinical Education Specialist will provide one twenty-eight (28) hour week of RF OnSite Education for up to four (4) students, selected by customer, including technologist from night/weekend shifts if necessary. CEU credits may be available if the participant meets the guidelines provided by Philips. Depending on your system configuration, the first four (4) hours onsite may be spent configuring new equipment for specific clinical needs, as well as reviewing important safety features and quality procedures. Please read guidelines for more information. Note: Site must be patient-ready. Philips personnel are not responsible for

actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

Special Note: Training on DVD recorders (if purchased) will be conducted by the manufacturer of the DVD recording system and not Philips Clinical Education.

Recommendations: For MultiDiagnost customers that have purchased 3D RX, it is highly recommended that part# 989801292309, XR 3D RX Handover OnSite 16h is purchased to assist customers in maximizing the workstation capabilities.

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref# 524-120315

2 ** CLIPRAIL MONITOR 1

Comprising:

- 2 clip rails, length 430 cm
- mounting material

3 ** Universal clinical package 1

The Universal Clinical Package completes the MultiDiagnost Eleva with all required basic accessories to perform universal radiology & fluoroscopy examinations.

Comprising:

- Carbon fiber table top with dimensions of 227 x 56 cm (89 x 22") and a maximum patient load of 185 kg (405 lbs)
- Detachable footrest
- Pair of handgrips
- Mattress
- Eleva examination room universal footswitch for exposure and fluoroscopy control

4 ** REMOTE OPERATION MD-FD 1

Functional extension offering flexible remote operation in the control room. Duplication of functions on Eleva Nearby Stand Control.

The remote control panel permits control of the most important system functionality, as described below.

The remote control panel facilitates:

- Joy-stick control of beam scan

The operator can select:

- Monitor oriented operation, or Patient oriented operation
 - Joy-stick control of tabletop tilt movement
 - Joy-stick control of angulation
 - Control of collimator light
 - Joy-stick control of collimator functionality
 - Control for 90 degrees pivot Flat Detector
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Automatic: One factor falling load (kV)
Two factor constant load (kV/mA)
IQX Intelligent exposure

- Fluoroscopy techniques:
For enhanced image quality and dose management, the generator supports Grid Controlled Fluoroscopy technique.
- Access times:
From fluoro standby to fluoro: < 0.3 sec
From fluoroscopy to radiography: 0.4 - 0.8 sec
From radiography to fluoroscopy: 0.4 sec
- Automatic mains adaptation
Mains voltage: 50/60 Hz, 380 / 480 V +/- 10 %

IQX features:

- Short exposure times eliminates motion blur
Exposure times are kept within an application dependent customizable time range. This ensures that every single image is correctly exposed and free from motion blur, even with rapidly changing density.
- Automatic kV-optimization
IQX automatically adjusts the settings, relative to the standard kV-value recommended for a particular organ type.
Thus the settings are optimized for the actual object density.
- Fast, in-pulse adaptation to (changes in) density
This kV-adjustment takes place within the first millisecond of the exposure, enabling adaptation to sudden changes in object density (e.g. during dynamic studies).

Tube voltage: 55 - 125 kV

Controlling range: customizable, relative to a defined start value.

9 ** SPECTRABEAM RF 1

Spectrabeam RF is an automatic X-ray beam spectrum optimization for OmniDiagnost and MultiDiagnost Eleva. Depending on personal preference regarding dose and image quality the optimal filter can be pre-programmed in the Eleva settings for automatic selection.

Comprising:

Automatic remote controlled spectral filter disc with four filter values:

- 1 mm AL + 0.1 mm Cu
- 1 mm AL + 0.2 mm Cu
- 1 mm AL + 0.3 mm Cu
- None

10 ** Dose measurement MD 1

During radiographic and fluoroscopic procedures the following parameters are measured to provide dose information to the user:

- Dose area product
 - Dose area product rate
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Comprising:

- Collimator with rectangular shutters
- Wedges for filtering the X-ray beam
- Circular collimation

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EXT. DIG. IMAGING MD-FD

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The Extended Digital Imaging System of the MultiDiagnost Eleva with Flat Detector offers high performance digital image acquisition for fluorographic and fluoroscopic applications. All image-processing parameters are set instantly, so within a split-second the MultiDiagnost Eleva with Flat Detector system is ready to acquire and display high quality digital images. As a result of the brilliant quality the user can diagnose and report directly from the monitor, during or immediately after the examination.

Images can be acquired in 1024 matrix size, with a maximum speed of 8 frames/sec. and optional with a maximum speed of 15 frames/sec. In 1024 matrix and 30 frames/sec in 512 matrix.

Live fluoroscopy images can be captured as single images or as complete runs. Any run of images can be displayed in a loop with adjustable speed and direction.

In addition it offers automatic on-line digital image processing and reviewing with the integrated ViewForum software.

Extended Digital Imaging offers printing facilities by preset layout, a number of preset layouts for specific examinations are available. The printing functionality can be extended with tailor-made printing protocols according to personal settings with the optional Print protocol editor.

Printing can be done by the touch of a button utilizing print protocol, which have been pre-programmed for the examination, making the workflow more efficient.

Extended Digital Imaging is, in combination with the optional Subtracted acquisition and vascular postprocessing able to support vascular procedures.

Main features of Extended Digital Imaging:

- Acquisition
 - Digital image acquisition (14 bit)
 - Single and multiple shot exposures
 - Acquisition speed up to max. 8 frames/sec.
 - Acquisition matrix 1024 x 1024
 - Acquisition image capacity up to 1000 images in 1024 x 1024 matrix
 - Fluoro grab
 - Grabbing of single fluoroscopic images
 - Dynamic fluoro grab: grabbing of runs of fluoroscopic images
 - AutoStore of images into the ViewForum database on the hard disk
 - Viewing
 - Easy navigation through examinations, runs and images
 - On-line (re)viewing of high quality images
 - Automatic, adaptive image processing
 - Automatic electronic shutters
 - Last image hold
 - Run cycle: display of images in a loop with adjustable speed and direction
 - Flexible image overview
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- Excellent image quality by using optimized 2D harmonization algorithms
- Direct Mouse manipulation
- User log-on
- Default Display protocols
- Flexible screen layouts

- Post processing
 - Contrast, brightness, edge enhancement and grayscale inversion
 - Zoom
 - Measurements
 - Multiple free text annotation with adjustable font size
 - Copy annotation strings within a run
 - Image processing (16 bit)
 - Automatic and manual asymmetric rectangular and circular electronic shutters
 - Rotate, flip
 - Zoom/Pan
 - Magnification

- Printing
 - One touch printing according to personal settings or preset layouts
 - Manual printing with free style layout
 - Multi tasking: background printing
 - Paper printing
 - DICOM print

- Storage
 - Local storage on hard disk (minimal 72 GByte)
 - AutoStore (to the hard disk) in the background
 - Archiving to e.g. PACS in the background with optional DICOM export package
 - CD/DVD recording optional
 - Movie export to *.avi

Comprising:

- Cabinet with 14 bit digital image processor
- Quick review module
- ViewForum keyboard with mouse for image processing
- Infrared viewpad for reviewing and postprocessing
- >= 72 GByte hard disk

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HIGH SPEED ACQUIS. MD-FD

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The option High Speed Acquisition (HSA) enables image acquisition at a high frame rate and short exposure time. HSA can be applied to all types of exams requiring dynamic study.

The operation of High Speed Acquisition is extremely easy. The dedicated acquisition program can be selected at the touch of a button at the Eleva system.

HSA features:

- Acquisition frame speeds of:
 - 15 frames/sec. in 1024 matrix

24	**	X-RAY RADIATION PROTECT.	1
		<p>This protective radiation shield can be attached to the side of the table top. It consists of a table top clamp with lead apron strips (width 70 cm, height 80 cm) giving radiation protection to the lower body.</p> <p>Compatible with:</p> <ul style="list-style-type: none"> • MultiDiagnost Eleva systems 	
25	**	Pair of shoulder rests	1
		<p>Pair of shoulder rests</p> <p>Compatible with:\</p> <ul style="list-style-type: none"> • MultiDiagnost Eleva systems 	
26	**	Mattress MD Eleva	1
		<p>Mattress for MultiDiagnost Eleva systems with Universal Clinical Package. It is additional to the one that comes standard with the system.</p> <p>The mattress is made out of foam (HL 2551), embedded in a synthetic cover which is sealed at the side of the mattress. The mattress is flat at the top.</p> <p>Specification:</p> <ul style="list-style-type: none"> • Length: 2000 mm • Width: 460 mm • Thickness: 40 mm <p>Compatible with:</p> <ul style="list-style-type: none"> • MultiDiagnost Eleva systems with Universal Clinical Package 	
27	**	Geometry Footswitch	1
		<p>Footswitch for exam room that allows control by foot of the following stand movements: table height adjustment table tilt longitudinal C-arm scanning lateral C-arm scanning.</p> <p>Comprising:</p> <ul style="list-style-type: none"> • Footswitch <p>Compatible with:</p> <ul style="list-style-type: none"> • MultiDiagnost Eleva systems with Universal Clinical Package 	
28	**	Cable Carrier CS	1
		<p>Additional carrier for suspension of cable hose from X-ray tube assembly or TV-monitor.</p>	
29	**	EZ PIC DVD Recorder	1

4. Philips may test and inspect the Trade-In prior to de-installation. If the condition of the Trade-In is not substantially the same on the Removal Date (ordinary wear and tear excepted) as it is identified on the System Disclosure Form, then Philips may reduce the price quoted for the Trade-In;
 5. If the removal date is delayed until after the De-Install Date, unless Philips causes the delay, then Philips may reduce the price quoted for the Trade-In by six percent (6%) per month.
 6. Philips is responsible for normal de-installation costs of the Trade-In.
 7. The trade-in value will not include costs associated for any facility modifications and/or rigging required for de-installation and must be accounted for separately.
 8. Customer is responsible for all plumbing necessary to properly drain coolant from chiller system and cap the lines.
 9. Prior to the Removal Date, Customer shall remove from the room all equipment that is not being de-installed.
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