

XR CATH LAB, VAMC HUNTINGTON, WV

PO# 581-B40008

Line #	Part #	Description	Qty
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1		<b>30Fr/sec Extension</b>	1
		Frame Rate Extension increases the system acquisition speed for cardiac applications that require high speed imaging. The frame rate extension increases the acquisition speed to 15fps and 30fps with a 1024x1024 matrix.	

2		<b>AlluraClarity FD20 C R8.2</b>	1
		The AlluraClarity FD20 (Ceiling) single-plane cardiovascular system comprises a ceiling mounted C-arm stand and digital imaging X-ray system for cardiovascular diagnostic and interventional procedures.	
		ClarityIQ technology is the foundation of AlluraClarity systems touching every part of the imaging system.	

ClarityIQ incorporates powerful state-of-the-art image processing technology, developed by Philips research, all working in real-time enabled by the latest computing technology:

- Noise and artifact reduction, also on moving structures and objects
- Image enhancement and edge sharpening;  
Automatic real-time patient and accidental table motion correction on live images.
- Flexible digital imaging pipeline
- ClarityIQ systems have a flexible digital imaging pipeline from tube to display that is tailored for each and every application area such as Cardio or Neuro. This gives the flexibility to select virtually unlimited application-specific configurations.
- With ClarityIQ over 500 system parameters are fine-tuned for each application area; the result of years of Philips clinical leadership. It is now possible to filter out more X-ray radiation, use smaller focal spot sizes, shorter pulses, thereby fully utilizing the unique capabilities of the Philips MRC X-ray tube.

The AlluraClarity FD20 system uses an integrated single-host concept. The system is comprised of five functional building blocks: Geometry, X-ray Generation, Image Detection, Viewing, and User Interface. Each functional building block is explained in further detail including accessories.

#### **GEOMETRY**

##### **The AlluraClarity FD20 Stand**

The Allura stand consists of a ceiling-mounted C-arm. The stand has the following capability:

- The L-arm can be rotated and can be moved in longitudinal direction allowing a three-sided patient approach and total body coverage.
  - L-arm rotation around the patient table: +90, 0, -90 degrees.
  - L-arm longitudinal movement: 300 cm
  - This movement features auto-stops at the parking position, cardio/neuro position and lower peripheral position.

The Allura stand allows a very wide range of projections, including PA and AP imaging.

- In the head position (0 degrees position, L-arm parallel to patient table):
  - C-arm rotation range (degrees): 120 LAO to 185 RAO
  - C-arm angulation range (degrees): 90 CA to 90 CR
  - (Full angulation capability determined by patient position)
- In the side position (+90 / -90 degrees position, L-arm perpendicular to patient table):
  - C-arm rotation range (degrees): 90 LAO to 90 RAO
  - C-arm angulation range (degrees): 185 CA to 120 CR or 120 CA to 185 CR
  - (Full angulation capability determined by patient position)
- The stand provides fully motorized fast movements with variable and configurable maximum speed.
  - Variable C-arm rotation speed, up to 25 degrees per second
  - Variable C-arm angulation speed, up to 18 degrees per second
- L-arm rotation and longitudinal movement: motorized and manual
- C-arm depth is 90 cm
- The FD20 Dynamic Flat Detector features Xper Access which allows the flat detector to be positioned in either portrait or landscape imaging modes in 3 seconds.
- The variable source image distance between focus and Dynamic Flat Detector input screen is motorized from 86.5 to 123 cm.
- The stand features BodyGuard a capacitive sensing collision avoidance system for patient protection.

## **Patient support**

### The Xper Table

- Patient support with flat carbon fiber tabletop
- Table top length of 319 cm, width 50 cm
- Metal-free overhang 125 cm
- Floating table-top movement of 120 cm longitudinal and 35 cm transversal range.
- Motorized height adjustment from 74.5 to 102.5 cm
- Maximum cantilever of 223 cm , for full patient coverage
- Maximum patient weight 250 kg plus 500 N for CPR (or 225 kg plus 1000 N) in any longitudinal position of the table top
- Xper Geometry and Imaging Modules for exam room controls.
  - The operating modules can be attached to either side of the table.

### Patient Support Accessories set

- One cerebral filter
  - Three rail accessory clamps
  - One IV stand
  - One slow recovery foam mattress
  - One Set of Arm Supports (FCV0248)
  - One Set of Patient Straps (FCV0250)
  - One Head Support (FCV0251)
  - One Arm Support (FCV0258)
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- One Table-mounted Radiation Shield
- One anti-fatigue mat with Philips logo

## X-ray Generation

The AlluraClarity FD20 comprises an integrated dedicated X-ray system, micro-processor controlled Certeray generator based on high frequency converter technique. The user interface control of this X-ray Generator is incorporated in the Xper module, Xper Desktop Viewing Console, and the Xper on-screen displays.

- The Certeray generator comprises:
  - X-ray generator: 100 kW
  - Voltage range: 40 - 125 kV
  - Program selection:
    - Pulsed X-ray up to 3.75 , 7.5 , 15 , 30, frames/s for digital dynamic exposures
    - Pulsed X-ray for pulsed fluoroscopy (3.75, 7.5, 15, 25, 30 frames/s).
    - Minimum exposure time of 1ms.
    - ECG triggered acquisition: allows acquiring one exposure for each QRS peak with selectable delay time
    - Automatic kV and mA control for optimal image quality prior to run to save dose
    - Optimal X-ray tube load incorporated in the Certeray generator
- An X-ray collimator with single semi-transparent wedged filter with manual and automatic positioning.
- SpectraBeam filtering of low energy radiation to optimize image quality and dose efficiency with the MRC-GS 0508 X-ray tube.
- Xper Beam Shaping, which means that, both shutters and wedges can be positioned on the Last Image Hold without the need for X-ray radiation.

## Fluoroscopy

- Three programmable fluoroscopy modes
  - Each mode can be set to different composition of dose rate, pulse speed, filter setting, and image processing (noise reduction, adaptive contour enhancement, and adaptive harmonization).
- Roadmap Pro
  - Roadmap Pro can be selected from the Xper imaging module and/or Xper module.
  - A vessel map is created and superimposed with (un)subtracted live fluoroscopy. Acquisition runs can be done during Roadmap without losing the vessel map. Roadmap Pro features Smart Settings in special clinical modes that are optimized to visualize special materials such as coils and glue. Live processing of the vessel map, the device map and the landmark map can be done on the Xper Module. Xres for vascular procedures is standard part of Roadmap Pro.
    - **Disclaimer:** AMC only corrects movement artifacts in two dimensions. Three dimensional movements such as swallowing or rotation of the head cannot be corrected.
  - In Roadmap Pro R2 "Automatic Motion Compensation" (AMC) is added to the roadmap functionality. During roadmap, small movements of the patient can lead to subtraction artifacts. These artifacts might conceal important clinical information. "Automatic Motion Compensation" compensates for rigid, uniform (skeletal/table) translations and is

therefore very effective in interventional (neurology) applications where subtraction imaging is applied.

- Disclaimer: AMC only corrects movement artifacts in 2 dimensions. 3 dimensional movements like swallowing or rotation of the head cannot be corrected.
- Xper Fluoro Storage, a grab function allows storage and archiving of both a fluoro image and the last 20 seconds of Fluoroscopy, called Xper Fluoro Storage. These fluoro images or fluoro runs can be archived as a regular exposure run.

### **X-ray tube**

The AlluraClarity FD20 has the Maximus ROTALIX Ceramic grid switch tube assembly MRC 200 GS 0407 integrated in the C-arc. This MRC tube has an anode heat storage capacity of 2.4 MHU and 0.4/0.7 mm. nominal focal spot values. The tube has a maximal loading of 30 and 67 kW.

Dynamic pulsed fluoroscopy uses grid switching technology to eliminate soft radiation and improve image quality. SpectraBeam allows for filtration of the x-ray beam with (a combination of) 0.2, 0.5 or 1 mm CU-equivalent filters.

Tube housing ROT-GS 1004 is for oil-cooling and has a build-in thermal safety switch. A rotor control unit is build-in for continuous rotation of the anode disk. The heat exchanger CU 3101 is for direct and continuous forced cooling with oil.

### **IMAGE DETECTION**

The AlluraClarity FD20 comprises the following image detection chain:

- A 30 cm by 40 cm FD20 Dynamic Flat Detector with eight imaging modes.
  - 30 x 38, 30 x 30, 26 x 26, 22 x 22, 19 x 19, 16 x 16, 13.5 x 13.5, and 11 x 11 cm
- The digital output of the FD20 flat detector is 2k\*2.5k image matrix at 16 bits depth for the largest mode
- The flat detector subsystem features Xper Access, the detector can be rotated over 90 degrees, it moves from portrait to landscape back & forth
- DQE (Detective Quantum Efficiency) >77 %
- The pixel pitch: 154 x 154 microns

### **Viewing**

The AlluraClarity FD20 comprises the following components in order to display the clinical images in the control and examination room:

#### **Displays**

#### **Examination Room**

Two 19-inch monochrome LCD monitors designed for medical applications. The first display is used for viewing live images. The second display is the reference monitor.

- 19-inch monochrome TFT-LCD display with a 160 degree viewing angle.
- Native format 1280x1024 SXGA
- 10-bit gray-scale resolution with gray-scale correction

These monitors are not delivered when FlexVision XL, EP Cockpit or EP Cockpit XL is selected.

The monitor ceiling suspension in the exam room can be configured to accommodate 3, 4, 6 or 8 LCD monitors and includes motorized height adjustment. The height-adjust feature is dependent

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on the room ceiling height. When FlexVision XL, EP Cockpit or EP Cockpit XL is selected the monitor ceiling suspension is configured for one of those options.

- Of the two medical monochrome LCD monitors included in the MCS, one is used for viewing of live images and the other serves as the first reference display. Reference images or runs are controlled by infra-red remote-control Xper ViewPad.
- The On-Screen Display provides status information on stand rotation, angulation, display of system messages, X-ray tube load status, selected fluoroscopy mode, selected detector Field of View, and both the rate and accumulation of the dose area product and skin dose. For cardiac applications, the system also monitors and displays body zone specific Air Kerma data (10 zones).

## **Control Room**

One 19-inch color LCD monitor used as a data monitor.

- 19-inch color TFT-LCD display
- Native format 1280x1024 SXGA

One 19-inch monochrome LCD monitor (Xper review monitor) designed for medical applications.

- 19-inch monochrome TFT-LCD display
- Native format 1280x1024 SXGA
- 10-bit gray-scale resolution with gray-scale correction

These control room monitors are not delivered when EP Cockpit or EP Cockpit XL is selected.

The Graphical User Interface on the monochrome monitor has the following features and functions:

- Step through file, run, or images
- File, and run overview
- Contrast, brightness, and edge enhancement settings
- Flagging of runs or images for transfer
- Applying text annotation in images
- Optional DICOM printing
- Executing Quantitative Analysis Packages if available
- Subtraction functionality
- Zoom/pan functionality
- Electronic shutters
- Video invert
- View trace, stacking of images
- Landmarking

## **Acquisition**

The acquisition segment coordinates the parameters for automatic exposure control. The program is selected via the Xper module or Xper Desktop Console.

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Exposure techniques:

- Serial imaging for DA and DSA with automatic exposure setting
- Single shot mode
- Acquisition frame rates:
  - 0.5 to 6 fps at 2048 x 2048
  - 15 and 30 fps at 1024 x 1024

The AlluraClarity FD20 offers a storage capacity of:

- 50,000 images at matrix size of 1024 x 1024
- 12,500 images at matrix size of 2048 x 2048
- Maximum number of examinations is 999, with no limit to the maximum number of images per examination

## **USER INTERFACE**

Xper is comprised of three elements: 1) Xper Settings, which customizes the system to each user preferred settings. 2) Xper User Interface 3) Xper Integration, which makes advanced integration functionality available such as DICOM Query / Retrieve, background archiving, and Xper Fluoro Storage.

The Xper User Interface uses User Interface modules in the Examination Room with On-Screen Display.

The On-Screen Display is positioned on the left side of the reference monitor. The following system information is displayed

- X-ray indicator and X-ray tube temperature condition
- Gantry position in rotation, angulation, and Source Image Distance
- Detector field size display
- General System messages
- Selected Frame speed
- Fluoroscopy mode
- Integrated fluoroscopy time
- Skin Dose and Dose Area Product
- Stopwatch

The Xper ViewPad contains the preprogrammed function settings. The system is provides with two Xper Viewpads. The following functions are provided:

- Run and image selection
  - File and run cycle
  - File overview
  - Store to Reference image file
  - Copy image to photo file
  - Digital (fixed) zoom and panning
  - Recall reference images
  - Laser pointer, intended to point at regions of interest on the imaging monitors
    - LED indication of laser pointer on/off and battery low
  - Subtraction on/off
  - Remasking
  - Landmarking
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## Remote Intercom

The separate intercom which is connected independently from the system that allows separate placement of the intercom at the preferred working position in the control room and examination room.

## Table Side Modules

Two Xper Modules are provided for use. The first Xper Module is mounted tableside. The Second Xper Module (NCVA778) is located in the control room. These modules use a touch screen, which can be operated when draped with sterile covers. The Xper Module contains the following functionality:

- Acquisition settings
- Selection of Xper Setting allows the user to set frame rates and X-ray generation settings applicable for the type of the preferred intervention
- Image Processing

The Xper Geometry module can be positioned on all sides of the patient table, while keeping the button operation intuitive. The Xper Geometry module provides the following functionality:

- Tabletop float and table height position
- Source Image Distance selection
- Longitudinal movement of the Gantry along the ceiling
- Gantry rotation in an axis perpendicular to the ceiling
- Store and recall of two scratch gantry positions including SID
- Emergency stop button

The Xper Imaging module can also be positioned on three sides of the patient table, while keeping the button operation intuitive. The Xper Imaging module provides the following functionality:

- Fluoroscopy Flavor selection defined per Xper Setting
- Shutters and Wedge positioning
- Xper Fluoro Storage and Grab
- Selection of the Detector field size
- Shutter positioning
- Reset of the fluoroscopy buzzer

## Pan Handle

- The Pan Handle is an extension of the control facility for floating movements of the tabletop.

## Control Room

The control room comprises a Xper Review Module, Xper Desktop Module, a keyboard, and a mouse. The Xper Review Module offers the basic functions for review. The Xper Review Module contains the following functionality:

- Power on/off
  - Tagarno wheel to control the review of a patient file
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- File and run cycle
- Contrast, Brightness, and Edge enhancement settings
- File, Run, Image stepping and run and file overview
- Delete run
- Image invert and digital zoom
- Reset fluoroscopy timer and enable/disable X-ray

System information is displayed on the bottom of the data monitor:

- Stopwatch and Time
- System guidance information
- Dose Area Product (DAP) and Skin Dose, and accumulative dose
- Frame speed settings, fluoroscopy mode, and accumulated fluoroscopy time
- Exposure and fluoroscopy settings as Voltage (kV), Current (mA) and pulse time (ms)
- Geometry information as rotation, angulation, and SID

## **Scheduling**

The patients can be listed and selected per date, physician, and intervention type. Previous DICOM patient studies can be uploaded with the DICOM Query Retrieve function in the Allura system.

Patient management protocols are flexible and allow for multiple studies to be selected under one patient identification number. This means that new studies can be appended to an earlier patient file. Furthermore, each study can contain multiple examinations to allow for split administrative purposes. Each examination contains multiple files, like acquisition file, reference file, and QA results file.

## **Preparation**

The preparation page provides the information of the room and patient preparation of each individual physician. The preparation page is customizable per Xper Setting and allows each physician to provide his own room protocols. This preparation page makes hard copies of the protocol instructions redundant.

## **Acquisition**

The acquisition page contains information on the current selected patient.

## **Review**

The review page allows for reviewing of patients:

- Previous examination cases
- Review of other DICOM XA or DICOM SC studies

## **Radiation Dose Structured Report**

Collection of dose relevant parameters and settings and export to a DICOM database (e.g. PACS, RIS), according IEC60601-2-43, 2nd Edition.

The reported data can be used for, for example:



- Quality improvement: evaluating trends in X-ray dose performance per facility, system and operator.
- RDSR enables analysis of average dose levels & variance for routinely performed exams and procedures.
- Typical system usage can be extracted from the data.

### **Secondary Capture Dose Report**

- The Secondary Capture Dose Report function allows the user to save & transfer, manually or automatically, a patient Dose Report to PACS in DICOM secondary capture format.
- The dose report will be stored in the related patient image folder.

### **Archive**

#### **Continuous Autopush (NCVA090)**

Continuous Autopush is an archive accelerator, which ensures that background archiving continues with minimal disruptions.

Clinical studies can be archived to a CD or a PACS. The archive process can be completely automated and customized with Xper Settings. Parameters like multiple destinations, archive formats can be selected to the individual needs and wishes for programming under the Xper Settings,

The Xper DICOM Image Interface enables the export of clinical images to PACS. The export formats are based on DICOM 3.0 protocols. The system exports clinical studies in Cardiac DICOM XA Multi-Frame or DICOM Secondary Capture formats.

- The export format is configurable in 512x512, 1024x1024 2048 x 2048 (unprocessed) matrix.
- The examination can be sent to multiple destinations for archiving and reviewing purposes.
- The Xper DICOM Image Interface provides DICOM Storage and DICOM Storage Commitment Services.
- The DICOM Query/Retrieve function allows older DICOM XA MF and DICOM SC studies to be uploaded in the system. Furthermore, additional information can be appended to a study, while keeping the patient identification the same.

### **Remote Service**

Access to the system from a Remote location is possible via network or modem connection. Remote access to a system can shorten the time needed for e.g. changing system settings or problem diagnosis.

#### **Clinical Education Program for the Allura Xper System**

##### **Essentials OffSite Education:**

Philips will provide up to two (2) Cardiovascular Technologists, Registered Technologists Registered Nurses, or other system operator as selected by customer, with in-depth didactic, tutorial, and hands-on training covering basic functionality and work-flow of the cardiovascular imaging system. In order to provide trainees with the ability to apply all fundamental functioning on their system, and to achieve maximum effectiveness, this class should be attended no earlier than two weeks prior to system installation.

**In the event that an EP Navigator workstation has also been ordered, the offsite training course will be tailored to focus on the electrophysiology functionality of the FD system and the EPN workstation.**

**In the event that your main FD system will be dedicated to Cardiac applications your offsite training course will be tailored to focus on the Cardiac functionality.**

This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This class is a prerequisite to your equipment handover OnSite Education. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. **Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292102 (CV Full Travel Pkg OffSite) is purchased with all OffSite courses.**

**Handover OnSite Education:**

Philips Education Specialists will provide twenty-eight (28) hours of education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Students should attend all 28 hours, and must include the two OffSite education attendees. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to 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. **It is highly recommended for systems that are fully loaded or for customers with a large number of staff members to also purchase 989801292099 (CV Add OnSite Clin Educ 24h).**

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref #106107-110915

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**FlexVision XL 8 Input Package**

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The FlexVision XL8 input package provides eight isolated wall connection boxes and eight legacy converters.

**Isolated Wall Connection Box**

This Isolated Wall connection Box facilitates connection of the video source via standard DVI cable/connector and lossless transfer of the video signal over the approximate 30 m cable distance. It can be mounted in the exam room or in the control room, depending on the location of the video source.

The quantity of the VWCB's has to be calculated as follows:

For each video signal to FlexVision XL on Vascular System: 8 VWCB

Note:

No VWCB is required in case a video signal is connected directly to a dedicated LCD from the following sources:

- 1) Xper Live/ref Slaving
- 2) Interventional HW (XtraVision), ViewForum, Xcelera (only if workstations are powered by Allura Xper)
- 3) Xper IM

**Legacy Video Convertor**

The Legacy Video Convertor enables conversion from VGA towards DVI for supported input resolutions as listed in the table below.

Signal type Native resolution Image Aspect Ratio

VGA 640x480 4:3

SVGA 800x600 4:3

XGA 1024x768 4:3

SXGA 1280x1024 5:4

SXGA+ 1400x1050 4:3  
 UXGA 1600x1200 4:3  
 WXGA 1280x800 16:10 (8:5)  
 WSXGA 1440x900 16:10 (8:5)  
 WSXGA+ 1680x1050 16:10 (8:5)  
 WUXGA 1920x1200 16:10 (8:5)  
 2K 2048x1080 19:10  
 TV1080I/P 1920x1080 16:9  
 TV 480I 720x480 4:3  
 TV 480P 704x480 4:3

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## **FlexVision XL,XperHD,Snapshot**

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FlexVision XL is an integrated viewing solution designed to give you full control over your viewing environment.

The FlexVision XL provides the ability to:

- Display information from up to 8 sources simultaneously (incl. third party systems) on the Philips 58-inch color LCD with LED backlight in the Exam Room.
- Resize and/or enlarge information at any stage during the case.
- Select and customize viewing lay-outs of the Philips 58-inch color LCD via the Xper table-side module
- Overview connected equipment (incl. third party systems) from a single location.

XperHD on FlexVision XL brings High Definition viewing for clinical images. Native resolution of FD20 can be displayed. Excellent sharp and crisp clinical images can be displayed at full size without digital zoom.

Xper HD brings:

- High Definition imaging
  - Sharp images at full size without zoom
- High Definition display at native resolution
  - Up to 2k\*2k image display fully integrated
- High Definition for the ultimate detail
  - Enhanced small vessel visualization

The FlexVision XL consists of:

- DVI video composition unit.
  - o The DVI video composition unit allows the user to direct and switch the video output of all connected medical equipment to specific sub windows of the Philips 58-inch color LCD with LED backlight in the Exam Room.
  - o The DVI video composition unit is operated from the Xper tableside module.
  - o The DVI video composition unit supports a wide variety of display formats (up to 1920x1200)
  - o Up to 9 external inputs are connected to the DVI video composition unit via Wall Connection Box(es).
- Medical grade, high resolution color LCD in the Exam Room
  - o This display supports the image quality requirements for monochrome X-ray images as well as color images and replaces all displays normally delivered with an Allura Xper FD or AlluraClarity system for the Exam Room.
  - o Main characteristics are:
    - 58-inch, 8 Megapixel color LCD
    - Native resolution: 3840x2160
    - Brightness: Max: 700 Cd/m<sup>2</sup> (typical) stabilized: 400 Cd/m<sup>2</sup>
    - Contrast ratio: 4000:1 (typical)
    - Wide viewing angle (approx. 176 degrees)

- Constant brightness stabilization control
- Lookup tables for gray-scale, color and DICOM transfer function
- Full protective screen Ingress Protection: IP-21
- Large color LCD control (Xper Module)
  - o Resize and/or enlarge information at any stage during the case via the Xper tableside module in the Exam or Control Room
  - o Select viewing lay-outs via the Xper table-side module in the Exam Room
  - o Create new layouts by matching inputs to desired locations on preset templates.
- Monitor Ceiling Suspension
  - o Monitor ceiling suspension for use in the Exam Room carries the 58-inch color LCD screen, providing highly flexible viewing capabilities. The monitor ceiling suspension is height-adjustable and moveable along ceiling rails. It can be positioned on either side of the table.
- Snapshot
  - o The snapshot function allows the user to store/save a screen-capture of any image on the 58-inch display as a DICOM Secondary Capture image to a connected PACS. The snapshot-all function allows the user to store/save a screen-capture for each displayed image in the Exam Room / Control Room as separate DICOM Secondary Capture images .

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## **RIS / CIS DICOM interface**

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This package allows communication of the Allura Xper system with a local information system (CIS or RIS). The interface uses the DICOM Worklist Management (DICOM WLM) and Modality Performed Procedure Step (DICOM MPPS) standards.

If a hospital has an Allura Xper system and an information system it can receive patient and examination request information from the information system and report examination results in order to:

- Eliminate the need for retyping patient information on the Allura Xper
- Prevent errors in typing patient names and registration numbers (ensuring consistency with IS information to prevent problems in archive clusters or to search for a name in case of later retrieval)
- Inform the IS about the acquired images and radiation dose

Upon request from the Allura Xper system the complete worklist with all relevant patient and examination data is returned from the IS to the Allura Xper system. For each patient the following information will be shown on the Allura Xper after it has been retrieved from the IS:

Patient Identification:

- Patient name
- Patient ID
- Birth date
- Sex

Examination/Request Information:

- Accession number
- Scheduled procedure step start time

- Scheduled performing physician's name

It is possible at all times to enter patient demographics information manually within the Allura Xper system in case of an emergency or in case the local Information System connection is down.

On request of the clinical user the Allura Xper will report the following information about the selected patient to the IS:

Patient Identification:

- Patient name
- Patient ID
- Birth date
- Sex

Examination/Request Information:

- Accession number
- Performed procedure step status start/end date and time
- Performing physician's name
- Referenced image sequence

Radiation dose:

- Total time of fluoroscopy
- Accumulated fluoroscopy dose
- Accumulated exposure dose
- Total dose
- Total number of exposures
- Total number of frames

Further detailed information can be found in the Allura Xper DICOM Conformance Statement.

The interface requires an EasyLink (hardware and software) if the IS is not compliant with DICOM Work List Management and Modality Performed Procedure Step.

## 6 **Standard Line Rate Video Output** 1

This interface provides image output to standard line rate video peripherals, such as VCRs or paper printers. This option also comprises automatic start and stop of a VCR, synchronous to the generation of X-ray (fluoroscopy and exposures).

## 7 **FD Rotational Angio** 1

Rotational angiography provides real-time 3D impressions of complex vasculature and coronary artery tree. It acquires multiple projections with just one contrast injection via a fast rotational scan of the region of interest.

Rotational Angiography can be used during screening procedures to quickly determine the optimal projection for the study as the angle (rotation/angulation) of the projection is indicated on each image.

Compared with traditional angiography, Rotational Angiography can save considerable time, dose and contrast, while providing image detail required for diagnostic and therapeutic decisions.

A rotational scan is possible both with the Allura Xper systems in the side position (ceiling mounted systems) and in the head position, providing the flexibility to perform procedures virtually from head to toe.

C-arm in side position:

- Max. rotation Speed: 30 degrees/s
- Max. rotation Angle: 180 degrees

C-arm in head position:

- Max. rotation Speed: 55 degrees/s
- Max. rotation Angle: 305 degrees

Max. Frame speeds are given by the framespeed specifications of the system configuration.

The speed and range of rotation are the highest available (see table). The very high speed allows using less contrast, whereas the very wide rotation range provides a complete evaluation of the anatomy.

A contrast run can be followed up with a mask run, to allow image/run subtraction.

The stand is designed for a very high mechanical stability. It offers precise positioning and high reproducibility, assuring you of high quality images and excellent subtraction studies.

Operation of Rotational Angiography is extremely easy. The procedure is selected, set up and executed virtually in a matter of seconds, supporting the highest patient throughput.

A set of dedicated acquisition programs is available on the Xper Module and can be selected at the touch of a button. The rotation end- and start-positions are easily selected. The procedure is controlled from the exposure hand- or footswitch.

## 8

### Xper Swing

## 1

XperSwing allows dual-axis rotational coronary angiography to gather more information in less time and with less X-ray and contrast dose. XperSwing acquires simultaneous RAO/LAO cranial-caudal views in just one acquisition run by moving the C-arm in a curved trajectory instead of multiple acquisitions. XperSwing can be used during screening procedures to quickly determine the optimal projection for the study as the angle (rotation/angulation) of the projection is indicated on each image, providing image detail required for diagnostic and therapeutic decisions and to obtain a real-time 3D impression of the coronary artery tree.

In total seven pre-programmed trajectories are available:

- Three for Left coronary imaging
- Two for Right Coronary imaging,
- Two generic trajectories.

The choice depends on size and weight of the patient. These trajectories are designed to fully cover all conventional projections for a diagnostic coronary angiography. Rotation and angulation movements are combined in one complete scan trajectory, using the maximum rotation and angulation speed of the Allura Xper system. (55 resp 30 degr/sec). XperSwing is possible in the side position (ceiling mounted systems) and in the head position

XperSwing functionality includes, but is not limited to

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- 15 frames per seconds acquisition to allows using of less contrast.
- Wide rotation range provides a complete evaluation of the anatomy.
- Precise positioning and high reproducibility, assuring you of high quality images and excellent subtraction studies.
- Set up and executed in a matter of seconds.
- Set of dedicated acquisition programs with the trajectories available on the Xper Module
- The rotation end- and start-positions can be selected.
- Acquisition procedure is controlled from the exposure hand or footswitch.

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### **Subtracted Bolus Chase**

1

For visualization of vessel structures when the blood flow is difficult to estimate, in particular in the lower peripherals.

Bolus Chase solves the problem of cumbersome step movements, the mismatch between blood flow and selected program, and lack of real-time image information.

During digital acquisition in non-subtracted mode with uninterrupted real-time image display, the contrast bolus is followed (chased) interactively by a motorized table scan movement using a hand-hold speedcontroller to adapt the speed of the table scan to the contrast flow. The framespeed can be adapted as well.

The bolus run is followed with a mask run while using the same speedcurve and framespeed as generated during the bolus run. Viewing is possible in the subtracted and non-subtracted mode. If subtracted viewing is not required, the mask run can be skipped.

Subtracted Bolus Chase gives fast, accurate results for increased patient throughput and improved patient management. Automated exposure control and precise speed control assure a high quality images and excellent subtraction studies.

Comprising:

- automatic exposure control
- tabletop motordrive and hand-held speed controller (tableside)
- technique selection using Xper module, available both tableside and in control room (Xper FD20, FD20/10)

10

### **Ventricular Quant.Sw pkg(Xper)**

1

Left Ventricular Quantification Software Package. Software package for the analysis of single plane Left ventricular angiograms. Calculates the Ejection fraction and local wall motion parameters in different formats.

Functions:

- Various LV-volumes
  - Ejection Fraction
  - Cardiac Output
  - Centerline Wall Motion
  - Slager Wall Motion
  - Regional Wall Motion
  - Calibration routines
-

In addition the package allows manual measurements of line lengths (absolute and ratio's) and angulations. Multiple measurements in one image are possible.

Comprising:

- software license

Compatible with:

- . Allura Xper FD 10 Rel 3 and FD10/10 Rel 2 onwards
- . Allura Xper FD20 Rel 2, FD20/10 Rel 2 onwards

**11** **Coronary Quant.Sw pkg(Xper)** **1**

Functions:

- diameter measurement along the selected segment
- cross sectional area
- %-stenosis
- pressure gradient values
- stenotic flow reserve
- calibration routines

In addition the package allows manual measurements of line lengths (absolute and ratio's) and angulations. Multiple measurements in one image are possible.

Comprising:

- software license

Compatible with:

- . Allura Xper FD 10 Rel 3 and FD10/10 Rel 2 onwards
- . Allura Xper FD20 Rel 2, FD20/10 Rel 2 onwards

**12** **Vascular Quant.Sw pkg(Xper)** **1**

Functions:

- vessel diameter / stenotic index
- automated vessel analysis
- calibration routines

In addition the package allows manual measurements of line lengths (absolute and ratio's) and angulations. Multiple measurements in one image are possible.

Compatible with:

- Allura Xper FD10 Rel 3 and FD10/10 Rel 2 onwards
- Allura Xper FD20 Rel 2 and FD20/10 Rel 2 onwards
- Allura CV20 R1 onwards

**13** **Cath Arm Support** **1**

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For brachial catheterisation and digital imaging technique  
The support is made of X-ray transparent material with exception of the fixing clamp and pivots.

- 14** **Peripheral X-ray Filter** **1**
- Set of flexible x-ray filters to provide an uniform density in angiographic examinations of the lower peripheral area.  
Comprising:
- one central filter, at the top edge provided with sizing markers at every 5 cm, length : 1 m
  - two side filters, length: 1 m

- 15** **Xper Table Tilt** **1**
- This innovating SyncraTilt enhances the accuracy and efficiency of gravity-oriented procedures. It is available as an option for the Xper table in Allura Xper series systems.

SyncraTilt is ideal for interventional, myelography, phlebography and head down procedures because it provides more precise imaging of contrast medium, blood, or objects in the body.

With SyncraTilt, the isocentre is automatically located at the isocentre of rotation and angulation of the stand. If the longitudinal position of the stand changes, the tilt isocentre is changed to match with the new stand position. As a result, the region of interest is always centred

As the table tilts, the X-ray beam automatically coordinates to the movement.

The table floats even when tilted, and the region of interest can be followed by panning the tabletop.

When combined with the Bolus Chase option, SyncraTilt enables phlebography to be performed with a head-up tilted patient.

The option provides:

- maximum tilt range:
  - 17 degrees (head down) to +17 degrees (head up).
  - tilt speed: 2 degrees/sec
  - automatic safeguarding system with manual override
  - panning range in tilted plane: equal to the standard
  - tabletop specifications (longitudinal 120cm, lateral 35cm)
  - easy to use controls
- Comprising:
- Tilt drive with user controls

Compatible with:

- Xper table in Allura Xper FD series Rel 3 onwards (monoplane versions) and Rel 2 onwards (biplane versions)
- Bolus Chase
- Pivot for table base
- swivel for table base

- 16** **Cradle extension**

**1**

This extension provides the possibility to cradle the table top.

This allows optimal positioning of the patient for f.i. more invasive (surgical) or guided puncture procedures.

Functionality:

- . isocentric cradle with maximum cradle range: -15 degrees to +15 degrees for the full tilt range  
cradle speed: 3 degrees/sec
- . automatic safeguarding system with manual override
- . easy to use controls

17

### **DoseAware Bundle**

1

DoseAware is a unique solution providing staff working in an X-Ray environment with direct, real time dose feedback, enabling them to optimize their behaviour and reduce exposure to scattered dose. The DoseAware bundle comprises:

- 1 BaseStation Package
- 10 PDMs
- DoseManager
- 2 PDM racks.

#### **Base Station Package**

The Base Station is the heart of the DoseAware system. It offers Online View, which displays real time dose rate and immediate dose data for any Personal Dose Meter (PDM) in range. The Walk-Up View enables easy access to personal dose history and PDM settings.

The Base Station has a touch screen interface and wireless communication with the PDM. The PDM dose information is stored within the Base Station and can be retrieved by the DoseAware Dose Manager software via a standard network interface to complete the DoseAware system with archiving and reporting functions.

The Base Station package includes also:

- a cradle and the DoseView software package that can be installed on a local PC (not included), which has Windows XP or Vista as operating system.
- Mounting material for the Base Station, facilitating mounting on a wall or on a Philips Monitor Ceiling Suspension or a Philips mobile C-arm system.

#### **10 Personal Dose Meters**

The Personal Dose Meter (PDM) is a small and easy to wear active X-ray dose meter intended to measure and store received X-ray dose of staff, present in an X-ray room during radiation. The PDM has build-in radio-frequency wireless communication (868.3 Mhz for Europe version, 915 Mhz for USA version) to connect to the DoseAware Base Station for real time dose-rate indication and has a long battery life for maintenance-free usage. In addition it can be personalized to increase interest and awareness. The PDM not only records warning level profiles every second for a total of 3600 sec (cyclic overwritten), but also stores accumulated dose data every hour for maximum 5 years. A clip and a lanyard holder are included to facilitate easy wearing.

The PDM can be configured via the cradle, DoseView, and Dose Manager Software.

#### **Dose Manager Package**

The Dose Manager is a software program that serves as archive and reporting facility for all dose data of the DoseAware system. It allows tracking of multiple PDM's at a location.

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Core functionality is:

- Store and manage dose history for multiple PDM's
- Collect all dose history from connected Base Stations via the network
- Browse dose history of PDM's as graph or table
- Export dose data for personal analysis with other software tools, like Windows Excel
- Create and print reports of dose history

18	<b>Rad Shield w/ Arm (Contoured) 61X76</b>	1
Contoured Rad Shield with Arm rest. 61X76		
19	<b>Exam Lamp 220v</b>	1
Spring arm mounted examination light for cardiovascular applications		
20	<b>Ceiling Track w/Column &amp; Handle Ext</b>	1
Mavig 2.5m Ceiling Track with Ceiling trolley, 360 degree column, and brake handle extension.		
21	<b>Medrad Mark 7 Arterion Pedestal</b>	1
The Arterion Mark 7 Pedestal contrast medium injector can be positioned anywhere at the patient positioning table on a mobile unit, for direct operation of all functions in the examination room.		

The injector system includes:

- A mobile pedestal stand with electronics unit and a connection cable to the manual release.
- A support arm with injector head and a control lever for moving the injector head.
- A user control console with large touch screen and corresponding additional monitoring display on the injector head.

Functions

Pressure limitation:

- for 150 ml syringes 689 to 8273 kPa, corresponds to 100 to 1200 psi. .

Flow rates for 150 ml syringes:

- 0.1 to 45 ml/s in increments of 0.1 ml/s
- 0.1 to 59.9 ml/min in increments of 0.1 ml/min
- rise/fall: 0 to 9.9 s in increments of 0.1 seconds

Release delay for injection or radiation:

- 0 to 99.9 s in increments of 0.1 s.

Adjustable volume for 150 ml syringes:

- 1 ml to the max. syringe capacity in increments of 1 ml.

Fill rate:

- Variable syringe filling speed 1-20ml/s.

Injection protocols:

- Up to 40 injection protocols possible.

Parameters currently displayed on the touch screen display and on the head display:

- Injection speed
  - Injection volume
  - Remaining volume
  - Injection duration
  - Applied pressure
-

Contrast medium heating:  
- Nominal 35°C (95°F)±5°C (9°F)

Injection data memory  
- Up to 50 injection data items stored  
Included in the scope of delivery  
- Injector standard configuration 150 ml  
- Philips interface cable  
- Operator Manual  
- Service manual (English).  
Power supply  
100-240 VAC 50/60 Hz 1000VA.

- 22** **IXR Additional Training 24 Hours OnSite** **1**  
Clinical Education Specialists will provide twenty-four (24) hours of CV OnSite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from the earlier of equipment delivery date or purchase date.
- 23** **Airfare to Cleveland for Biomed Training** **1**  
Includes one (1) participant's airfare from North American customer location to the Cleveland Training Center (CTC) in Cleveland, Ohio. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process. Note: Cancellation/rescheduling policy strictly enforced. Expires one (1) year from the earlier of equipment delivery date or purchase date.
- 24** **Food Transpt Lodging for Cleveland Biomed Training** **23**  
Includes one (1) day of modest lodging, ground transportation, and meal expenses in Cleveland, Ohio for one (1) attendee. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process. Note: Cancellation/rescheduling policy strictly enforced. Although this part is only for one day, it is sold in multiple quantities to account for entire length of course. Expires one (1) year from the earlier of equipment delivery date or purchase date.
- 25** **XD3970ALLURAFD7.6PART1C TC9** **1**  
Course Number: XD3970  
System Codes: 722010, 722011, 722012, 722013  
Course Title: Allura Xper Rel 7.6 Part 1  
Course Length: 9 days (exclude Saturday, Sunday, and Philips holiday)  
Delivery Method(s): Instructor-Led  
Modality: iXR  
Location: PHC, SLC, CTC  
Target Audience: Service Engineers.  
DESCRIPTION:  
Part 1 trains the Customer Support engineer to a technical level which will enable him/her to perform Planned Maintenance (PM) and basic Corrective Maintenance (CM) on Allura Xper systems, according to the Customer Support philosophy. He / She will also be able to assist during a system installation.  
Part 1 can be followed up by part 2, intended for dedicated Cardio Vascular modality Engineers. Part 2 focuses on setting to work (configuration) and extended Corrective Maintenance.  
The following Allura Xper systems are covered:
-

FD10 release 7.6  
FD10/10 release 7.6  
FD20 release 7.6  
FD20/10 release 7.6  
FD20/20 release 7.6

PREREQUISITES:  
CS9020 BASIC NETWORKING  
XC3002 X-RAY SYSTEMS BASIC PART 2

#### COURSE OBJECTIVES:

The engineer will learn how to:

- Operate the system, as far as required to perform service tasks.
- Make use of the service documentation.
- Make use of basic functionality of the service tools.
- Perform Planned Maintenance:
  - Safety checks
  - Performance checks
  - Adjustments(Not included: Mechanical checks)
- Create a backup of the system.
- Perform a restore of the system.
- Perform basic CM with help of the service documentation and service tools.
  - Faultfinding using the System Manual Corrective Maintenance.
  - Focus on replacement of parts with a high exchange rate.
  - Retrieve the log file from the system to escalate a problem.
- Customize positions for Automatic Position Control in the EPX-database.

#### MAJOR TOPICS:

Introduction Allura Xper systems

Operating

Service documentation

Service tools

Planned Maintenance

Corrective Maintenance

System Architecture

X-ray generation

Geometry

Operator controls

Power supply

Imaging

System control

Radiation safety

Image quality

Customization

Software

\* PHILIPS PROPRIETARY MATERIALS SUCH AS DIAGNOSTIC SOFTWARE AND SERVICE DOCUMENTATION ARE NOT INCLUDED IN THE TRAINING AND WILL NOT BE AVAILABLE FOR USE OUTSIDE OF THE TRAINING ENVIRONMENT. THE TRAINEE MUST RETURN ALL PROPRIETARY MATERIALS RECEIVED DURING THE TRAINING AT THE END OF THE TRAINING. CUSTOMER ACKNOWLEDGES AND AGREES THAT NEITHER CUSTOMER NOR TRAINEE WILL RECEIVE A LICENSE TO SUCH PROPRIETARY MATERIALS AND THAT THE TRAINEE MAY NOT BE ABLE TO FULLY UTILIZE THE TRAINING WITHOUT THE USE OF SUCH PROPRIETARY MATERIALS. (CERTAIN LICENSES MAY BE OBTAINED THROUGH PURCHASE OF AN ALLIANCE CO; OP AGREEMENT.) Course dates and location to be finalized by Philips. Philips shall attempt to accommodate Customer requested dates and training location.

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The price quoted includes course tuition. Travel and living expenses are not included, but may be purchased separately through Philips.

**IMPORTANT Notes Regarding Admission to Philips Customer Engineer Training Courses:**

1. Trainee must meet all prerequisites
2. Course expires one (1) year from equipment installation date (or purchase date if sold separately)
3. Customer must sign Philips Nondisclosure statement
4. Trainee must sign Philips Nondisclosure statement
5. Customer must sign Philips terms and conditions of training

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**XD3974ALLURAXPERREL7.6P  
ART2CTC9**

**1**

Course Number: XD3974

System Codes: 722010, 722011, 722012, 722013

Course Title: Allura Xper Rel 7.6 Part 2

Course Length: 9 days

Delivery Method(s): Instructor-Led

Modality: iXR

Location: PHC, SLC

Target Audience: Service Engineers.

**DESCRIPTION:**

This course is a follow up on the Allura Xper Part 1 course and is intended for modality Engineers that specialize in Cardio Vascular.

3 months Field experience on Allura Xper systems is strongly recommended before attending this part 2 course, this means the engineer has done some installation, pm- and cm visits.

In part 2 the customer support engineer is trained to a technical level which will enable him/her to perform setting to work and extended corrective maintenance on Allura Xper systems, according the customer support philosophy.

Not covered are the Mechanical Installation and Cabling of the Allura Xper System.

These topics are covered in the e-learning: Allura Xper Mechanical Installation.

The following Allura Xper systems are covered:

FD10 release 7.6

FD10/10 release 7.6

FD20 release 7.6

FD20/10 release 7.6

FD20/20 release 7.6

**PREREQUISITES:**

- XD3866 or XD3966 or XD3970

**COURSE OBJECTIVES:**

For Allura Xper systems, the engineer will learn how to:

Perform the setting to work, including:

Setting to work of Dicom Store and Storage Commit from Allura towards an Xcelera PACS as well as Setting To Work of the CWIS option towards an Xcelera and/or Hemodynamic system Xper

Flex Cardio.

Customizing of common parameters of the Xper database.

Distinguish technical problems from incorrect operating.

Perform extended corrective maintenance; with help of analytical trouble shooting, service documentation and service tools.

Perform a Dicom traffic capture file, with help of the DVTK program (Dicom Network Analyzer), as part of the connectivity Fault Isolation Procedure for analyzing and if needed sending to helpdesk  
Image quality faultfinding using lower level IQ measurements.

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**XD3007XRaySystemsBasicPart  
2CTC5D**

1

Course Number: XD3007

Course Title: X-Ray Systems, Basic part 2

Course Length: 5 days

Delivery Method(s): ILT

Modality: DXRLocation: Best

Target Audience: Field Service Engineers

System codes:

**DESCRIPTION:**

The ILT provides fundamental information on the generation and application of X-rays for diagnostic imaging.

**PREREQUISITES:**

English Language,  
XD9115, X-Ray Systems, Basic part 1

**COURSE OBJECTIVES:**

After successful completion of this eLearning, the learner will have knowledge on the basics of:

- Medical application
- The physics of X-rays
- Radiation protection
- The building blocks of X-ray systems
- X-ray tubes
- Generators
- Image performance parameters
- The documentation systems of X-ray systems
- Planned Maintenance
- Installation

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  5. Customer must sign Philips terms and conditions of training
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