

REQUESTING SERVICE: RADIOLOGY  
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V.A. Medical Center  
VA TN VALLEY HCS  
NASHVILLE CAMPUS  
1310 24TH AVE SO  
NASHVILLE, TN 37212-2637

REQUISITION: 626-B89011

Qty	Item Description
1	<b>Cios Alpha</b> Cios Alpha is a high-end C-arm system with a dynamic flat detector for fluoroscopy and acquisition of single images.  The compact, mobile system is designed for use in cardiovascular surgery, gastroenterology, urology, emergency surgery, orthopedics and general surgery.
1	<b>Flat Detector 30x30</b> High-resolution, dynamic flat panel detector with indirect converter technology (amorphous silicon) having a size of 30 cm x 30 cm, with a matrix of 1536 x 1536 pixels.
1	<b>Single tank w. 25 kW</b> High-voltage generator with 25 kW (IEC) and rotating anode, including integrated active refrigeration system. Additional weights for the counterbalance adjustment. DSA conformity to the German norm DIN 6868-150 is not possible with 25kW only, ESU is required
1	<b>Basic chassis mot. with pos. mem.</b> C-arm base unit with motorization of orbital and angular movement. The attached control module for motorized movements includes position storage keys for storage of 2 orbital and angular positions with corresponding collimator values.
1	<b>Vascular Premium PLUS</b> Vascular Software Premium: Subtraction angiography for displaying the vessel as a subtraction series and roadmap, with extended functionality for postprocessing images and scenes in subtraction/roadmap mode, incl. - Pixelshift - Remask - Landmark - Dual channel function - Live Graphical Overlay - contrast medium: iodine or CO2  2D measurement function: Measurement of angles and distances  Remote control unit incl. holder: Touch-based remote control unit for operating the C-arm from within the sterile work area. Includes the holder to attach to the side of the OR table (RoW and USA).  Quantification program for determination of degree of stenosis

Qty	Item Description
1	<p>Unidirectional trigger output for connecting a contrast agent injector. The trigger interface is compatible with following injectors: MEDTRON Accutron HP, pedestal</p> <p><b>Mobi.workstation w.Flex pl. column</b></p> <p>Mobile workstation including monitor column with motorized height adjustment and 240°vertically rotatable monitors (-30°to +210°) for flexible positioning of the TFT displays with integrated cable routing and fold-up function for transport and park position.</p>
1	<p><b>2x19 Premium High Bright TFT monitor</b></p> <p>Two 19" color TFT displays with high luminance for live and reference image display. With a resistant protective glass.</p>
1	<p><b>DVI video splitter 2x</b></p> <p>Connection for an external live monitor (monitor A) and an external reference monitor (monitor B) via DVI connection.</p>
1	<p><b>DICOM Send/Storage Commitment (StC)</b></p> <p>Digital, unidirectional image transfer of single images or complete folders to a network in DICOM format. Feedback from the image archive (Storage Commitment).</p>
1	<p><b>DICOM Print</b></p> <p>For sending and printing of images by means of a virtual filmsheet to a DICOM laser camera or printer. Provision of DICOM Print service for connection to a laser camera or a network printer (postscript-capable).</p>
1	<p><b>DICOM Worklist / MPPS</b></p> <p>Import of patient/examination data from an external RIS/HIS patient management system with DICOM MWL (Modality Worklist) as well as feedback on the examination status with DICOM MPPS (Modality Performed Procedure Step).</p>
1	<p><b>CD / DVD recorder</b></p> <p>Direct output of fluoroscopy and image series on DVD recorder in MPEG4 format.</p>
1	<p><b>Printer installation kit</b></p> <p>Installation kit for connecting Sony UP D 89x, UP 97x, and 99x printers</p>
1	<p><b>Multi-function foot switch</b></p> <p>Ergonomic multifunctional foot switch for radiation release, control of radiation functions, and storing.</p>
1	<p><b>USA / Canada WLAN client</b></p> <p>WLAN Client module with Ethernet connection for wireless transmission of DICOM image data, e.g. to a PACS (Picture Archiving and Communication System).</p>
1	<p><b>Skin Spacer</b></p> <p>Single-tank spacer</p>
1	<p><b>Dose measure. chamber</b></p> <p>System-integrated dose measuring chamber for displaying the dose area product or air kerma value.</p> <p>The cumulative dose area product is displayed for the current patient and saved under the patient data.</p> <p>The cumulated dose is automatically transferred to a radiation summary report and can be retrieved at any time.</p> <p>For each patient a cumulative value is saved in the patient database.</p> <p>Alternatively: Display of air kerma values.</p> <p>Dose Area Product - meter is mandatory for IEC 3rd edition and US (CFR 1020.32) and</p>

Qty	Item Description
	country specific rules.
	(Not mandatory for Cios Select S1 and S3 in China).
1	<b>Multi-function foot switch cover</b> Non-sterile cover made of transparent plastic film for the multifunctional foot switch.
1	<b>Addit. set accompanying documents S</b> Additional set of documents
1	<b>Addit. set of operator manuals S</b> Additional set of operator manuals
1	<b>Initial onsite trng 24 hrs</b> Up to (24) hours of on-site clinical education training, scheduled consecutively during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	<b>Sony UP991AD printer - film and paper</b> Black & White Hybrid Graphic Printer.  The UP-971AD is a black and white HYBRID graphic printer that supports both analog and digital applications. The UP-971AD has both an analog video input as well as a USB 2.0 high speed interface for digital printing. The UP-971AD offers a resolution of 325 dpi and print speed of about 8 seconds. * Dimensions: 12.4 x 5.2 x 12.0 inches. * Print Media: 210mm width roll. * Print Size: 10.5 x 7.87 inches (Digital/MAX). * Printing Method: Thermal Printing. * Resolution: 325 dpi.  Includes one year warranty through Sony.
1	<b>Cios Alpha/Connect/Fusion Training</b> This educational offering includes system training tuition for 1 clinical engineering professional on the CIOS Alpha, Connect, or Fusion system, and the syngo multimodality workstation as applicable. The training curriculum depends on and is limited to the system purchased and may include multiple courses including classroom training in USA or an international site, and/or virtual and web-based training. Additional modality basics training may be required as a prerequisite to these courses and must be purchased separately. This system training includes a 15% discount. Travel and lodging are not included. This educational offering must be completed by the later of (12) months from purchase or install end date; if training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund. This forfeiture does not apply to Federal government organizations.

Offset Part SU\_INITIAL\_24 Initial onsite trng 24 hrs ( )

Offset Part 14455207 Addit. set accompanying documents S (

Offset Part 14455208 Addit. set of operator manuals S (

Offset Cios Alpha Complimentary Biomed Training ( )

# Detailed Technical Specifications

## Description

Cios Alpha with 25 kW generator and energy storage unit supports digital subtraction angiography (DSA) as an acquisition technique that conforms with DIN 6868-150.

The compact, mobile C-arm system has a high-resolution digital 1536k x 1536k imaging system with a continuous digital image chain and touch user interface.

The FD-based system with three image input formats and high-voltage generator guarantees optimum fluoroscopic images. An acquisition speed of up to 30 P/s can be achieved during pulsed fluoroscopy; in single-image mode, an output of 12 kW to 25 kW is possible, depending on which system configuration has been selected.

Intelligent Dose Efficiency Algorithm (IDEAL) is an intelligent dose management system developed specifically for the Cios C-arm family. It performs an ongoing analysis of each individual detector pixel to provide continual assurance of optimum dose management. This ensures at all times an ideal balance between image quality and dose. Contrast and brightness are optimized automatically. Furthermore, the ergonomic and functionally designed user interface and software support an optimal workflow in the OR.

A hard disk with a storage capacity of up to 150,000 images, a USB interface, and a DVD-R/CD-ROM read/write drive, including DICOM 3.0 offline media format, enable flexible data management. Loading and display of images from the same modality or other modalities (CT, MR, XA, US). DICOM 3.0 services can be used via the integrated DICOM 3.0 interface.

The mobile workstation is optionally available with the Flex monitor column (with 240° vertically swiveling monitors) Flex Plus (motorized height adjustment, with 240° vertically swiveling monitors as well as TFT displays which can be folded into one another for easier transport and secure storage). The monitor columns have integrated cable routing for flexible positioning of the TFT displays. The uninterruptible power supply (UPS) ensures the highest level of data security. Efficiency and flexibility are ensured by upgrade options which allow the system to meet long-term requirements.

The digital flat panel detector enables distortion-free imaging with a high spatial resolution and excellent contrast.

The dynamic flat panel detector with integrated removable grid is especially suitable for fulfilling the requirements of general and interventional applications.

Semi-conductor material: Amorphous silicon (a-Si) with CsI-scintillator

- Size 30 cm x 30 cm
- Pixel size: 194 µm
- Matrix size: 1.536 x 1.536 pixels
- Acquisition depth: 16 bits

Usable input formats:

Mag 0: 30 cm x 30 cm

Mag 1: 20 cm x 20 cm

Mag 2: 15 cm x 15 cm

## Description

### Single-tank high-frequency generator

The microprocessor-controlled high-voltage generator operates at an inverter control frequency of 18 kHz - 50 kHz and automatic line voltage compensation (100 V - 240 V  $\pm$  10%, 50/60 Hz  $\pm$  1 Hz).

High resolution is achieved by a dual-focus rotating anode tube with focal spots of 0.3 and 0.5 mm. The integrated active refrigeration system, thermal monitoring, and automatic pulse frequency adaptation ensure long-term availability during extended fluoro times.

The following operating modes are supported:

- Single image: 40 kV to 125 kV (3 mA - 250 mA)
- Fluoroscopy: 40 kV to 125 kV (3 mA - 250 mA) with 0.5 - 30 F/s, min. pulse width 5 ms

The Balance assembly is required to ensure counterbalanced movement of the C-arm.

The compact, counterbalanced design of the C-arm chassis provides a high degree of convenience and user-friendliness. It features good mobility even in the smallest, busiest environments. Furthermore, all castors have cable deflectors. The C-arm design has been optimized for maximum projection angles, allowing optimum patient access and flexible use in the OR. (Immersion depth: 73 cm, free space between tube and FD 85 cm, focus-FD distance: 110 cm, orbital movement 148°(-51.5°; +96.5°), angulation  $\pm$  225°, swivel range  $\pm$  12°, horizontal movement 20 cm). The C-arm is completely counterbalanced. It can easily be adjusted in its vertical position by means of a motorized vertical travel (45 cm).

The color-coded electromagnetic brakes with control buttons on all control consoles and on the flat panel detector housing facilitate fast and safe C-arm positioning.

An easily accessible handle on the flat panel detector allows for effortless positioning from within the sterile area without restricting patient access.

The easy-to-clean touch-based control panel is attached to the C-arm by means of the horizontal carriage and has the same function as the control panel on the mobile workstation.

The following functions can also be controlled:

- Brakes for all directions of movement
- Vertical movement
- Emergency STOP

The motorization package includes an additional control module which is attached to the remote control unit and provides functionalities to operate the motorized orbital and angular movement.

The clear display of the angular and orbital angles- on the control panel simplifies positioning.

The additional control module includes position storage keys for storage and retrieval of 2 orbital and angular positions with corresponding collimator values.

Vascular Software Premium: Image acquisition including subtraction angiography (SUB) and roadmap (ROAD).

Acquisition rate of 0.5 to 30 f/s, storage rate can be configured.

Automatic request for contrast medium injection following the acquisition of the mask image. Display of dynamic changes during the contrast medium flow.

Adding of the anatomical background (landmark) from 0% to 100%. Simultaneous display of the corresponding pre-contrast images on the right-side monitor. Peak opacification for iodine contrast (MaxOpac) and CO2 contrast (MinOpac),

Recalculation of opacified image by manually adjusting the relevant subtraction series.

Possibility to reuse an opacified image, which has already been created within a study, for roadmap procedures.

## Description

In comparison to the regular vascular software the premium package offers additional features to improve the image quality of opacified images and to reduce contrast medium administration.

### Further processing functions:

- Pixelshift
- Remask
- Draw AAA Line
- Re-use of Peak opacified image

Roadmap technique for easy catheter guidance, dilatation, and stent implantation.

2D measuring function with integrated calibration to determine the scale for the measured distances in the X-ray image. When measuring angles, the sides of an angle can be changed independently. Complementary angle ( $=180^\circ - \text{measured angle}$ ) can be displayed by changing the angle's direction.

C-arm functions that previously could only be controlled from within the non-sterile area, are now accessible from within in the sterile area via the remote control unit.

This includes all functions of the touch control panel plus:

- Brakes for all directions of movement
- Control of vertical movement
- Emergency STOP

The remote control unit enclosed in sterile packaging is attached directly to the railing of the OR table by means of a special holder. The robust cable connection of the system ensures an ever reliable control.

Calculation of the degree of vessel stenosis. Automatic vessel analysis and display of the minimum value in relation to a defined reference value. Geometrical and densitometrical determination of the value.

The C-arm system waits for the 'armed' signal from the injector and then sends a 'rad on' (inject signal) when radiation is released. By delaying the start of injection, an optimum start of the contrast medium administration can be achieved after creating the mask image.

The use of a contrast medium injector can result in an improved image quality during subtraction angiography, since the stable flow rate of the contrast medium ensures homogeneous contrast enhancement during the entire examination. This can also reduce the patient's exposure to contrast medium and radiation.

The mobile workstation is equipped with a central locking brake and cable deflectors on all castors as well as an easy-to-clean, ergonomically designed touch-based control panel and optical mouse. With a storage compartment for the mouse and a mouse pad surfaces which is suitable for both left- and right-handers. Flexible vertical positioning of the TFT displays irrespective of the trolley position through freely rotatable monitor column with integrated cable routing

- Motorized height adjustment for adaptation to the viewing angle depending on the examiner's height and position
- Reduction of ambient light interference through optimized viewing angle

Description
<ul style="list-style-type: none"> <li>- 180 degree rotating monitor column combined with a cable-free mobile workstation allows for optimal patient-side positioning of the monitors.</li> </ul> <p>TFT displays fold in towards each other for easier maneuverability during transport and to protect the monitors when they are not in use.</p>
<p>With approx. 16 million display colors and anti-glare coating glass screen for displaying live and reference images.</p> <ul style="list-style-type: none"> <li>- Large horizontal and vertical viewing angles of 170° each</li> <li>- Screen size 19"/48 cm</li> <li>- Graphic display 1280 x 1024 pixels</li> <li>- Typical/Max. brightness 600/1000 typ. cd/m²</li> <li>- Contrast ratio (typical) 1000:1</li> <li>- Backlight White LED technology</li> </ul>
<p>Note concerning DICOM interface(s) The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).</p> <p>Functionalities across system borders with/between partner systems require explicit validation, since the interpretation of the interface by the partner/target system is not part of the product's responsibility. Such validation can be done on a time and material basis.</p> <p>A modification of the interface that might be required is not included in the offer; e.g. for the rare case, that available configurations are not sufficient. With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply</p>
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<p>The following functions can be performed with the multifunctional foot switch:</p>

<p><b>Description</b></p> <p>Pedal functions:</p> <ul style="list-style-type: none"> <li>- Radiation release for fluoroscopy</li> <li>- Radiation release for selected operating modes (single image and depending on the options SUB, ROAD)</li> </ul> <p>Switch functions:</p> <ul style="list-style-type: none"> <li>- Selection of operating mode (single image, fluoroscopy, and depending on the options SUB, ROAD)</li> <li>- Selection of the Video source at reference monitor (e.g x-ray image or endoscopic image, depending on the option SmartView – HD video manager)</li> <li>- Store (LIH, LSH)</li> </ul>
<p>WLAN Client module with Ethernet connection for wireless transmission of DICOM image data, e.g. to a PACS (Picture Archiving and Communication System).</p> <ul style="list-style-type: none"> <li>- Supported WLAN standards: 802.11 a/b/e/g/h/i/n</li> <li>- Supported Frequency bands: 2.4 / 5 GHz</li> <li>- Security / Authentication: 802.11 i, 802.1x, WPA/WPA2. WPA2 Enterprise supplicants EAP-TLS, EAP-TTLS (MSCHAPv2), EAP-PEAP (MSCHAPv2). Supports certificates and private key upload / storage (multiple)</li> <li>- Data encryption: TKIP, AES</li> <li>- Supports DHCP-client</li> </ul> <p>This module follows United States/Canada regulations regarding available frequencies.</p>
<p>For increasing the minimum source-skin distance to 30 cm</p>
<p>Resolution of the dose area product and air kerma value display</p> <ul style="list-style-type: none"> <li>- Display of the dose area product in 0.01 cGycm<sup>2</sup></li> <li>- Display of air kerma in 0.1 cGycm<sup>2</sup></li> <li>- Display of the cumulated air kerma value in 0.1 mGy The cumulated air kerma value is identified by a preceding dot.</li> </ul> <p>Depending on country-specific regulations, the display can be changed by SIEMENS Service from the dose area product to the air kerma value and the cumulated air kerma value.</p>
<p>The foot switch and parts of the connecting cable are covered with a plastic hood.</p> <p>Package contains 50 pieces.</p>