STEREOTAXIS IMAGING

Model S Powered by OMEGA MEDICAL

DATA SHEET

C-ARM

Isocenter-to-floor distance	1067 mm (42.0”)
C-arm pivot radius	1368 mm (53.9”)
Variable focal spot-to-detector range	400 mm (15.7”)
Movement control	All movements are motorized with controls at table side or control room
Double oblique projections (magnets in stowed position)	90° LAO/RAO and 30° CRAN/CAUD

Magnetic field at 0.08T, SID at 1250 cm	
AP	20° LAO / 23° RAO and 30° CRAN/CAUD
LAO	38° LAO / 16° RAO and 30° CRAN/CAUD
RAO	10° LAO / 40° RAO and 30° CRAN/CAUD

Magnetic field at 0.10T, SID at 1250 cm	
AP	15° LAO / 2° RAO and 30° CRAN/CAUD
LAO	37° LAO / 0° RAO and 30° CRAN/CAUD
RAO	9° LAO / 37° RAO and 30° CRAN/CAUD

PATIENT TABLE

C-200 cardiac table, four (4) way float, carbon fiber tabletop, tabletop rotation ±90°, non-tilt

Weight capacity	204 kg (450 lbs) with a 4X safety margin (816 kg / 1,800 lbs)
Width	686 mm (27.0”)
Length	2640 cm (103.9”) tabletop
Float travel	1220 mm (48.0”) longitudinal ±165 mm transverse
Table height	830 mm – 1100 mm (32.7” – 43.3”)
Table rotation	±90°
Mattress	50 mm (2.0”) thick conformable foam, 2600 mm (102.4”) long
Accessory rail dimension	6.4 mm (¼”) wide x 25.4 mm (1”) high Rail on three sides of the table
Included accessories	Accessory rail attached lead skirt
Tabletop attenuation	Less than 1 mm Al equivalence at 100 kV
Table position indicator	An indicator light on the procedure room monitor boom displays whether the table is centered or not. An interactive graphic display on the Navigant screen in the control room and procedure room shows if the patient table position would conflict with the magnetic navigation system and then guides the user to reposition the patient table to an appropriate position.

X-RAY GENERATOR

ESP 100 (100 kW) high-voltage generator – Extremely sharp kV waveform resulting in superior image quality and reduced soft radiation.

Output frequency	Up to 240 kHz
Max output power	100 kW

Pulsed Fluoroscopy	
kV	60 - 125 kV
mA	5 - 80 mA
Pulse width	5 - 50 ms

RAD (Cine)	
kV	60 - 125 kV
mA	650 mA maximum

Typical kV rise time	175 µs
Generator control	From control room

FLAT PANEL DETECTOR

Receptor type	CMOS
Conversion screen	Cesium Iodine
Pixel area – active	31 cm x 31 cm
Pixel matrix – active	1548 x 1548, 15 cm x 15 cm “MAG 2” 1548 x 1548, 20 cm x 20 cm “MAG 1” 1024 x 1024, 30 cm x 30 cm “Normal”
Pixel pitch	198 µm
Limiting resolution (Nyquist frequency)	2.0 LP/mm
MTF, X-ray	60% @ 1.0 LP/mm
Energy range	40 – 125 kW
Fill factor	85%
Dynamic range	71 dB in low full well, 75 dB in high full well
A/D conversion	14-bits
Detector image format	99 µm x 99 µm
X-ray image resolution	3068 x 3068
Lifetime	≥ 10 years

X-RAY TUBE

High speed, dual focus X-ray tube

Maximum exposure voltage (IEC 60613)	125 kV
Focal spot (IEC 60336)	0.6, 1.0
Nominal power (IEC 60613) For the equivalent anode input power of 235 Watt	Small - 53 kW IEC 60613 Large - 90 kW IEC 60613
Anode angle	10°
Maximum anode heat content *Anode is only rotating during exposure*	1 000 000 HU
Heat content of the X-ray tube assembly	1 500 000 HU
Nominal continuous input power (IEC 60613)	1000 W (1400 HU/sec) with heat exchanger unit Automatic stop after 10 minutes of continuous fluoroscopy
Cooling	Air cooled, fan
Tube permanent filtration	1.0 mm Al
Added pre-filtration	1.6 mm Al *added per measurements, may vary
Added pre-filtration	0.14 mm Cu
Total filtration (IEC 60613)	Minimum 2.6 mm Al
Lung filter	Yes
Collimator	The standard collimator provides automatic collimation to the field size selected (Normal, MAG 1, and MAG 2) as well as automatic tracking for changes in the SID.
Horn angle	270°

IMAGE ACQUISITION MODES

The system operates exclusively in pulsed fluoro mode. The pulse rate is selected via the reference workstation GUI. Upon footswitch activation, live images are captured corresponding to each pulse. There are two fluoro footswitches, Fluoro with Last Image Hold (LIH), and Fluoro Loops with automatic replay of the 'loop' upon release of the footswitch.

Digital Pulsed Fluoroscopy	
Frame rate	3.75 / 7.5 / 15 f/s
Modes	Dose reduction Image enhancement
Fluoro loop	Captured images are displayed on LIVE Monitor as well as stored on hard drive during "Fluoro Loop" acquisition. The "Loop" is automatically displayed until the next acquisition.
"kV-Hold" function (ABS mode)	In kV-Hold mode, fluoro is done at fixed kV, unless the kV factor is moved manually. Every fluoro pulse is terminated, whenever possible, at the proper brightness.
Manual fluoro	If necessary, fluoro can be performed manually. Press the fluoro footswitch and adjust the fluoro image in real time using kV and mA. In Pulsed Fluoro, the pulse rate can be changed during fluoro as well.
Noise Reduction filter (NR)	This function is used to reduce the background image noise. Use NR Lo if you are panning or if there is rapid anatomical motion. Use NR Hi for most viewing when you are not panning or when there is little anatomical motion.
Carto	This function is used ONLY when the Carto mapping system is used during the procedure. This function reduces the interference lines in the image generated by the Carto mapping system.

CINE	
Imaging	Cine Imaging mode is used to capture motion events that require review and/or analysis. These images are automatically stored on the hard drive. Upon record footswitch activation, the cine series is captured and upon footswitch deactivation the cine series is automatically replayed on the live monitor and stored to the hard drive. Cine is fully automatic.
Frame Rate	15 f/s

Image Adjustments	
Edge enhancement	5 level
Noise reduction	6 level with motion correction
Last Image Hold (LIH)	Yes
Magnification modes	Normal, MAG 1, MAG 2
CARTO noise filter	Yes

REVIEW OPERATIONS

Reference/Live	This function moves the review controls between the Reference and Live screens.
Window/Level	Six presets for Window/Level are available. Settings can also be set manually.
Edge enhancement	Toggles through the 5 Edge Enhancement levels available. The change is saved by the system.
Zoom and Pan	Incremental zoom in 8 steps through the mouse wheel up to 2X. Click and drag image to pan using the mouse left button. The change is temporary and system reverts to non-zoom.
Polarity	Toggles between Normal and Reverse image polarity.
Split image	This function permits up to 4 images to be displayed on the reference monitor. The images are obtained from the thumbnails.
Image orientation [Flip]	This function "Flips" the image left to right and top to bottom. The letter "R" in the lower right corner of the screen represents the orientation of the image with respect to the original view.
Collimate	This feature permits the edges of the image to be "Collimated" (cropped). Click and drag the collimator using the mouse (top and bottom or corners). The change is temporary, and the system reverts to open collimators (uncropped). This is a review only function and does not control the x-ray field size.
Send to archive	This function invokes the drop down window "DICOM server node select". Select the destination to send the open study.
Print	This function will send the image displayed on the Reference monitor to a Windows® printer.
Save	This function saves an individual image to the patient file. Fluoro LIH image, Fluoro Loops and Cine are automatically saved.
Text	This function invokes the Annotation Application toolbar that appears at the top of the Live image.

NETWORK OPERATIONS FROM THE PATIENT DIRECTORY

DICOM version	DICOM 3.0
Send patient	STORE_SCU
Print images	PRINT_SCU
Query patient	Basic_Worklist_SCU, and Query/Retrieve_SC
Previous procedure references	Retrieve previous studies from PACS and display as reference on review screen

CD/DVD OPERATIONS FROM THE PATIENT DIRECTORY

Backup to CD/DVD	
Restore from CD/DVD	
File formats	DICOM/JPEG/AVI image save to CD/DVD or USB
Local image storage capacity	120,000 minimum No RAID HDD (not intended for permanent storage)

VIEWING IN THE PROCEDURE ROOM

Display	Odyssey™ QHD 58" large screen display
Display resolution	QuadHD8MP clinical displays (3840 x 2160)
Image quality	DICOM compliant grayscale response
Display controls	Tableside LCD touchscreen
Ceiling suspension	Motorized boom with additional backup monitors

VIEWING IN THE CONTROL ROOM

Display	Odyssey™ QHD 58" large screen display
Display resolution	QuadHD8MP clinical displays (3840 x 2160)
Image quality	DICOM compliant grayscale response
Display controls	Optimized efficiency by operating lab as one system • Single mouse and keyboard to operate entire lab • Supports up to 16 digital fiber optic input channels
Video inputs	16 (2 inputs in procedure room floor hub)
Video inputs details	DVI-D Standard VGA (w/ adapter) BNC (w/ adapter) Composite (RCA socket) Maximum resolution: 1920 x 1200
Video repeater output	DVI-D Standard VGA (w/ adapter) BNC (w/ adapter) Maximum resolution: 1920 x 1200
Mouse control input	Mouse/keyboard input - USB type B Windows compatible One Linux compatible input

RECORDING AND REVIEWING LARGE DISPLAY CONTENT

Recording and reviewing content is accomplished via the Odyssey Cinema™ system.

Live view with client	Yes
Review of recorded procedure	Yes
Add & go to bookmarks	Yes
Support hospital VPN connection	Yes
Audio	No
Storage capacity	No internal storage, connection to NAS in 4GT sections
Client software OS platform	Windows

BACK-UP POWER

Systems are equipped with UPS that is intended to keep systems computers operational during a short power interruption. System cannot operate fluoroscopy with back-up power, unless hospital back-up power is available.

OPERATOR RADIATION SHIELD

Systems come with two lead skirts. Any additional radiation shields that are installed in the magnetic robotic lab must be compatible with magnetic fields present in the lab.

MASS OF EQUIPMENT

Table	205 kg (452 lbs)
C-arm	452 kg (996 lbs)
Boom	180 kg (397 lbs)
Cabinets	694 kg (1530 lbs)
Vision	195 kg (430 lbs)
Total system mass	1726 kg (3805 lbs)

NETWORK

The system requires two network connections. One on the Stereotaxis system network switch, one DICOM connection is also required.

ELECTRICAL CONNECTIONS

Model S
Nema 1, 480V AC 3 phase circuit breaker enclosure with a 90A, 3 pole circuit breaker
Nema 1, 400V AC 3 phase circuit breaker enclosure with a 100A, 3 pole circuit breaker

Odyssey Vision
120V AC 30A disconnect with a L5-30 receptacle
230V AC 15A disconnect with a L6-30 receptacle

STEREOTAXIS™
Pioneering Endovascular Robotics

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