

V.A. MEDICAL CENTER  
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BALTIMORE, MD  
  
PO# 512-B30607

TRADE IN:  
BRAINLAB ULTRASOUND MACHINE  
MODEL# 16000E  
SN: 6110308001  
AQ DATE: 4/28/08

Pos.		Qty.
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# PLATFORM

## 1 | B15000 | CURVE DUAL DISPLAY PACKAGE

Curve dual display is the high-end mobile Brainlab navigation station. It offers a new level of image guided surgery technology, combining state-of-the-art technology and smart ergonomics with an appealing modern design. The two independently maneuverable 26" widescreen touch displays allow new degrees of flexibility in the OR and excellent image quality in resolutions beyond full HD. Curve's newly designed control concept ensures intuitive usability - centered around a "home button", drag & drop functionality and patient-centric data handling.

### 19900 | CURVE DUAL DISPLAY NAVIGATION STATION

High performance Image-Guided-Surgery station, integrated in a mobile display cart with separate mobile camera cart for flexible positioning of the infrared cameras - featuring advanced optical, wireless passive marker tracking technology:

- Total surgical control on a fingertip, accessible via two large 26" widescreen touch displays
- Highly flexible arms allow optimal positioning of displays, e.g. maximum overview in side-by-side configuration, or non-sterile operation from one display outside and other within sterile field
- Brilliant display quality with resolutions beyond full HD (1920x1200pixels per display) without compromises due to touch interface (surface acoustic wave technology)
- Mobile camera cart with telescopic stand and motorized joints for remote-controlled camera alignment yields new degrees of freedom in terms of setup flexibility
- Infrared tracking cameras with extended detection volume and laser pointer for quick and intuitive positioning
- Wireless communication between the two carts for superior system setup flexibility (only available in specific countries)
- Central "Home Button" ensures intuitive system control
- Advanced high-fidelity sound system brings digital music into the OR, e.g. from iPod touch®/iPhone®
- Docking mechanism optimized for easy transportation and compact storage of display and camera carts
- Enhanced system stability through un-interruptible power supply
- Easily accessible connection panel for plug&play connectivity e.g. with surgical microscopes, fluoroscopes, endoscopes, ultrasound etc via state-of-the-art digital and analog video inputs supporting up to full HD resolution: HD/SD-SDI up to 1080i/29.97fps, Composite (CVBS, NTSC/PAL), S-video (NTSC/PAL)
- Fast simultaneous access to e.g. PACS/hospital network and integration with e.g. C-Arms via 2x high-speed network connection (up to 1 Gbit/s each)
- Built in WLAN module for mobile wireless network communication to hospital access points (according to IEEE 802.11b/g with up to 54Mbps - only available in EU including Switzerland. Availability planned for US, Canada. FDA clearance planned for 4QCY2012)
- Additional 2x HDMI direct inputs for each display to route any additional external video signal (e.g. from endoscope, ultrasound, etc) for direct viewing onto any of the display
- High-performance computer (Intel Xeon 3530 2.8 GHz Central Processor Unit, 6 GB RAM memory and 320 GB storage)
- Direct patient data transfer from/to 4x USB and CD/DVD±RW.
- Brainlab Session Sharing: Viewing and control of Curve from Digital OR package or Digital Lightbox
- Customer site pre-requisite for Brainlab Session Sharing: systems connected to local network infrastructure (minimum 100 Mbit/s, recommended 1 Gbit/s, effective network speed 40 Mbit/s, recommended maximum latency 2 ms)

- Intuitive Brainlab operating system for patient-centric data handling, application and display management
- Central "Home Button" ensures intuitive system control
- Intuitive content management of available displays via "drag & drop" functionality
- Streamlined patient-centric access to DICOM and Brainlab xBrain image data from multiple sources (PACS, CD/DVD, USB, Network) - DICOM functionality requires 30038 UNIVERSAL DICOM TRANSFER
- Unified search and load of patient image data from all available sources with optimized usability, including intelligent pre-fetching and buffering of patient image data for increased performance
- Ability to merge different patient data sets
- Export of treatment documentation (e.g. screenshots) and plans to network storage or USB
- HIPAA-compliant feature set including authentication, accountability log and automatic log-off

## PLATFORM SOFTWARE FEATURES

### 2 | 25101 | INTERACTIVE DICOM VIEWER

Intuitive image viewing, manipulation and data enrichment software with a touchscreen-optimized user interface.

- Concurrent display of multiple medical image series with flexible hanging protocols
- Easy arrangement of windows via drag-and-drop
- Intuitive touch-based view manipulation functions (zoom, pan, scroll, flip, rotate)
- Measurement functions for distance, angles and circles
- Entering image annotations with virtual keyboard
- 3-D multi-planar reconstructions in multiple planes (axial, coronal, sagittal, oblique)
- Support of numerous modalities (x-ray, CT, MRI, PET, SPECT, ultrasound, secondary capture)
- One-click direct transfer of patient image data and planned objects to navigation applications
- Import and export of surgical plans from/to iPlan workstation / iPlan Net server / USB / CD for objects, trajectories, labeled points and image fusion

### 3 | 25106 | TOUCH-BASED SURGICAL PLANNING

Fast and intuitive surgical planning on user-friendly interface for increased efficiency and optimized workflow with surgical navigation in OR

- Manual planning, marking and volume measurement e.g. of tumors or other anatomical landmarks as volume objects
- Planning of multiple trajectories (target/entry point) on slice and reconstruction sets
- Trajectory verification with probe and inline views
- Threshold-based segmentation for quick and easy selection of anatomical structures
- Import of surgical plans from iPlan workstation / iPlan Net server / USB / CD / DVD for objects, trajectories, labeled points and image fusion: load treatment plans from iPlan 2.6 and iPlan Spine 2.0.1 or higher; load treatment plans from iPlan RT 4.1; export/import treatment plans to/from CranialENT 2.1

### 4 | 30038 | UNIVERSAL DICOM TRANSFER

Universal patient data communication software that allows for import of patient data in DICOM format on Brainlab systems.

- Import from any data sources including PACS ("Query/Retrieve" and "Push"), USB, CD/DVD and network
- Import of any modalities including CT, MR, PET/SPECT, X-ray
- Selection of patient from patient list on PACS (C-FIND)
- PACS access via DICOM "Query/Retrieve" (compatible to all major PACS systems)
- Receipt of data via DICOM "Push"
- Screenshots taken on the system can be send to PACS in DICOM format (C-STORE)
- Generic license valid for all applications (navigation and planning) installed on system

## **5 | 25102 | AUTOMATIC IMAGE FUSION**

Fast and precise fusion module, based on mutual information algorithm enables to exploit all anatomical & functional data sets simultaneously

- Automatic fusion of numerous modalities including CT, MRI (T1, T2, FLAIR, MRA), PET, SPECT (PET, SPECT fusion not available in Spine & Trauma 3D Ver 2.0)
- Interactive fine-adjustment for specific regions of interest
- Coordinated side-by-side viewing/navigation of fusion results and overlay in multiple reconstructions
- Spyglass function for representation of fusion results as one image set within the other
- Ability to fuse a series of image datasets from different modalities and points of time
- Generic license valid for all applications (navigation software and interactive DICOM viewer)

REQUIRES:

- 30038 UNIVERSAL DICOM TRANSFER
- Interactive Dicom Viewer 1.x / Cranial/ENT Navigation SW 2.x / Spine & Trauma 3D Navigation SW 2.x (or higher versions)

## **6 | 25103 | ADVANCED 3D VISUALIZATION**

Instantaneous, high-quality 3D visualization for analysis by and increased diagnostic confidence of the surgeon.

- 3D volume rendering of CT, MR, PET, SPECT datasets, with presets for visualization of skin, bone, vessel, DRR and MIP
- Superimposition of 3D dataset visualization and surgical planning data (volume objects, trajectories and labeled points)
- Selection of region of interest to cut and zoom onto the relevant anatomical volume (only available in interactive DICOM viewer)
- Crop functionality to cut viewing plane into 3D visualization along any freely definable direction or pointer tip (only available in navigation software) respectively
- Threshold adjustment to adapt visualization to density of relevant anatomy
- Generic license valid for all applications (navigation software and interactive DICOM viewer) installed on the system

## **7 | 25104 | STREAMING AND RECORDING WITH WEB PORTAL: 1 X HD**

Live-streaming and recording in digital HD quality including portal for web-browser access from anywhere (e.g. PC in a surgeon's office)

- Digital HD streaming (1280x800/720p resolution with state-of-the-art MPEG4/H.264-encoding) allows efficient transmission of live view of any display content (e.g. navigation software, microscope or endoscope video) to any web-browsing enabled computer connected to network (typical data transfer rate / network load only ~4 Mbit/s)
- Digital HD recording (1280x800/720p resolution with state-of-the-art MPEG4/H.264-encoding) of any display content (e.g. navigation software, microscope or endoscope video) to local or network connected storage (typical file size only ~4 Mbit/s, i.e. ~30 MByte per minute recording)

- Screenshot function to capture any display content in native resolution and store to local or network connected storage
  - Intuitive one-click control interface for streaming, recording and screenshot functionalities seamlessly integrated in Content Manager
  - Direct web-access to live stream, digital recordings and screenshots via system portal page accessible from any web-browsing enabled computer - no further software installation required
  - HIPAA-compliant feature set including authentication, accountability log and automatic log-off
- Requirements and further information:
- Access via HTTP; optional additional access via HTTPS (requires certificate to be purchased by customer)
  - Login via "NTLM Authentication Scheme for HTTP"; optionally NTLM can be disabled and Kerberos can be used instead (not supported by Mac OS)
  - Single-sign-on (automatic login with domain account)
  - Web browsers: 32bit-versions of Internet Explorer 8, Mozilla Firefox 4, Google Chrome 11, Opera 11 on Windows, Google Chrome 12 on Mac OS X (or later versions) with VLC 1.1.11 (or later versions) and VLC browser plugin (<http://www.videolan.org>)
  - Requires IPv4 (without NAT) and open network ports for video stream

## CRANIAL UPGRADE

### 8 | 21355 | UPGRADE TO IPLAN CRANIAL 3.0 FROM 2.X

- Integrated Data Transfer Module (PatXfer) including patient data administration
- View and Alignment" task for user defined orientation/adjustment of data sets
- Import of Non-DICOM images (e.g. jpg, bmp,..) into separate view tab
- Semi-automatic detection of Donut Registration Markers
- Drawing in reconstructed views (Overview tab)
- Additional drawing tool "Pipette Brush" for greyvalue-based manual outlining
- Additional drawing tool "Smart Shaper" for object deformation
- Labeled Point functionality available in all planning steps
- Independent region zoom in 2D and 3D views
- Export of screenshots to PACS
- New option of Cranial Bone Segmentation (art.no. 21351)
- New option of importing and exporting STL files (art.no. 21352)

### 9 | 71093 | GENERATION UPGRADE: CRANIAL NAVIGATION SOFTWARE FOR CURVE/KICK

Software upgrade to Cranial 2.X navigation software for previous 'VectorVision Cranial', 'Kolibri Cranial' and 'cranial essential' applications. Transfer of existing licensed software features is included. The cranial navigation software 2.x for Curve is optimized for 16:10 monitors, providing more space to display and efficiently organize information. This version provides new features and additional options:

- Supports Patient Browser application for intuitive data selection
- Seamless interface to Interactive DICOM Viewer application for pre- and intra-operative data review, image fusion and planning (optional)
- New view layouts including 3x3 and 2+1 split-screens
- Possibility to extend navigation view to second screen without additional menu bar (Curve Dual-display)
- System-related performance improvements resulting in fast refresh rates
- High screen resolution offering more anatomic detail
- Dedicated 3D cranial navigation views for improved spatial orientation due to realistic tissue reconstruction (optional)
- Display of Perfusion data for additional functional information
- Menu bar switch to toggle between standard and enlarged navigation views

- Semiautomatic Multi-Modality Fiducial/Donut Marker detection
- Quantitative deviation indication to verify accuracy of fiducials

#### **SURFACE MATCHING REGISTRATION (optional)**

- Complete new surface matching algorithm for increased robustness and reliability of z-touch and Softouch registrations
- Color-coded registration accuracy mapping with distance to surface indication
- Animated registration 'Guide' for set-up specific support with continual feedback
- Additional point acquisition to "improve" surface registration

#### **PLANNING**

- Adjustment and review of multiple trajectories including navigated entry point definition
- Display of fiber tracts in original red-green-blue color code for detailed functional information (requires iPlan Fibertracking)
- Patient Browser' interface to save all changes and additions performed during navigation as additional plan

#### **INSTRUMENTS**

- Pathway control of instruments through data sets displayed in pre- or user-defined 'Inline' and 'Probe's Eye' views
- Visualization of actual instrument shapes in 3D for comprising overviews and improved spatial orientation
- Auto-zoom in to tool tip for magnification of target area
- Integration of video signals for live display on the navigation screen
- Detection of pre-calibrated 'Disposable Stylet'
- Detection of pre-calibrated 'Disposable Biopsy Needle 1.8mm'
- Optional support of 'VarioGuide'
- Optional support of 'Pre-operative Automatic Image Fusion'
- Optional support of various third party ultrasound devices
- Optional support of 'Research Link To Navigation' (Open IGT)
- Optional support of 'Automatic Image Registration' for iCT and iMRI (2.0) Brainsuite environments
- Optional support of 'Data Set Alignment' software
- Optional support of 'Object Shift' software
- Optional support of latest microscope models such as Leica M720 OH5, Olympus OME9000, ZEISS OPMI Pentero 900 and Vario 700
- New microscope cable (required) included for customers with existing integrations
- Minimum requirement hardware: Curve or Kick

## **ENT UPGRADE**

### **10 | 71094 | GENERATION UPGRADE: ENT NAVIGATION SOFTWARE FOR CURVE/KICK**

Software upgrade to ENT 2.X navigation software for previous 'VectorVision ENT', 'Kolibri ENT' and 'ENT essential' applications. The ENT navigation software 2.x for Curve is optimized for 16:10 monitors, providing more space to display and efficiently organize information. This version provides new features and additional options including:

- Optimized 'Patient Browser' interface to select and load data before surgery and to add data sets at any time during surgery
- Seamless interface to Interactive DICOM Viewer application for pre- and intra-operative data review, image fusion and planning (optional)
- New view layouts including 3x3 and 2+1 split-screens
- Possibility to extend navigation view to second screen without additional menu bar (Curve Dual-display)

- Performance improvements resulting in fast refresh rates
- High screen resolution offering more anatomic detail
- Dedicated 3D ENT navigation views for improved spatial orientation due to realistic tissue reconstruction (optional)
- Menu bar switch to toggle between standard and enlarged navigation views
- Automatic maximization of 3D/Endoscope view if no instrument is navigated
- Semiautomatic Multi-Modality Fiducial/Donut Marker detection
- Quantitative deviation indication to verify accuracy of fiducials

#### **SURFACE MATCHING REGISTRATION (optional)**

- Complete new surface matching algorithm for increased robustness and reliability of z-touch and Softouch registrations
- Color-coded registration accuracy mapping with distance to surface indication
- Animated registration 'Guide' for set-up specific support with continual feedback
- Additional point acquisition to "improve" surface registration

#### **PLANNING**

- Adjustment and review of multiple trajectories including navigated entry point definition
- Patient Browser' interface to save all changes and additions performed during navigation as additional plan

#### **INSTRUMENTS**

- Pathway control of instruments through data sets displayed in pre- or user-defined 'Inline' and 'Probe's Eye' views
- Visualization of actual instrument shapes in 3D for comprising overviews and improved spatial orientation
- Auto-zoom in to tool tip for magnification of target area
- Integration of video signals for live display on the navigation screen
- Optional support of 'Pre-operative Automatic Image Fusion'
- Optional support of various third party ultrasound devices
- Optional support of 'Research Link To Navigation' (Open IGT)
- Optional support of 'Automatic Image Registration' for iCT and iMRI (2.0) Brainsuite environments
- Optional support of 'Data Set Alignment' software
- Optional support of 'Object Shift' software
- Optional support of latest microscope models such as Leica M720 OH5, Olympus OME9000, ZEISS OPMI Pentero 900 and Vario 700
- Minimum requirement hardware: Curve or Kick

## **BRAINLAB ACADEMY IGS**

### **11 | 81012-01 | BRAINLAB ACADEMY OAT: CRANIAL (1 DAY)**

The Brainlab Onsite Application Training Program (OAT) is a three-hour training program for all members of a clinical team who utilize Brainlab VectorVision® IGS products. Onsite training offers participants the opportunity to gain a basic proficiency and comfort level in using IGS technology.

Participants use the equipment and software to demonstrate proficiency in OR setup, patient registration, planning, navigation, and basic troubleshooting for a navigated case.

Each one-day OAT purchase includes the following:

- 2) three-hour training sessions for staff and surgeons, maximum six participants per session
- CEU/CE accreditation
- Participant educational materials
- Travel and accommodations for Application Trainer

Cranial OAT purchases are transferable toward the following product trainings:

- BOLD
- CMF
- Fibertracking
- IGSonic
- Microscope
- Stereotaxy
- Third-party ultrasound

#### **12 | 81022-05 | BRAINLAB ACADEMY OAT: ENT (1 DAY)**

The Brainlab Onsite Application Training Program (OAT) is a three-hour training program for all members of a clinical team who utilize Brainlab VectorVision® IGS products. Onsite training offers participants the opportunity to gain a basic proficiency and comfort level in using IGS technology.

Participants use the equipment and software to demonstrate proficiency in OR setup, patient registration, planning, navigation, and basic troubleshooting for a navigated case.

Each one-day OAT purchase includes the following:

- 2) three-hour training sessions for staff and surgeons, maximum six participants per session
- CEU/CE accreditation
- Participant educational materials
- Travel and accommodations for Application Trainer

ENT OAT purchases are transferable toward CMF product training.

## **IGS SERVICES**

#### **13 | 81013-01 | CLINICAL CONSULTATION CRANIAL - 1 CASE**

On-site clinical support for a case with Brainlab equipment. Applicable to Cranial, Stereotaxy, BOLD, Fibertracking, CMF, Microscope, IGSonic and External Ultrasound cases. Facilitated by qualified and trained Brainlab Support Personnel.

Requires 48 hours advance notice.

#### **14 | 81023-01 | CLINICAL CONSULTATION ENT - 1 CASE**

On-site clinical support for a case with Brainlab equipment. Applicable to an ENT case. Facilitated by qualified and trained Brainlab Support Personnel.

Requires 48 hours advance notice.

#### **15 | 50780 | FREIGHT, INSURANCE AND FEES**

#### **16 | 81001-11 | CURVE NAVIGATION SYSTEM INSTALLATION**

- Assembly of hardware & computer components (including planning platform if applicable)
- Installation and configuration of Brainlab software  
Verification of completeness, functioning, precision, faultlessness of all soft-and hardware components
- Network integration
- Test & Verification of data transfer
- Set-up / mapping, installation and test of network connection
- Adjustment of TCP/IP settings according to hospital specs
- Adjustment of DICOM specific settings at workstation
- Adjustment of Brainlab specific initialization file for correct directory selection and networking capacity
- Configuration of video streaming