Vivid T9

Product Description

The Vivid™ T9 is our Multipurpose Cardiovascular System designed for reliability in busy environments for cardiac and shared service imaging, with the capabilities of 2D, adult, pediatric, fetal/obstetrics, vascular/peripheral vascular, urological, abdominal, transcranial, small parts, musculoskeletal, intraoperative and transesophageal applications.

System Architecture

Ease of Use features help make the Vivid T9 a productive cardiovascular ultrasound system – simplification of Vivid software and touch panel support working seamless in any environment. The Stress Echo, Auto EF 2.0, AFI 2.0 and Scan Assist Pro options create a productive environment with added efficiency.

True Scan Raw Data is GE's innovative technology that allows for advanced processing on archived images by applying many of the same scan controls and advanced quantitative tools available during the original exam.

General Specifications

Dimensions and Weight

- Width:
  - Keyboard: 502 mm (19.8 in)
  - Base: 590 mm (23.2 in)
- Depth:
  - Maximum: 810 mm (31.9 in)
- Height:
  - Maximum: 1,775 mm (69.1 in)
  - Minimum: 1,405 mm (55.3 in)
- Weight: 60 kg, 132 lbs

Electrical Power

- Nominal input voltage: 100-240 VAC, frequency 50/60 Hz
- Power consumption maximum: 300 VA with peripherals

Console Design

- Four active probe ports
- ECG port
- Integrated HDD (500G)
- Multiple USB ports
- Optional DVD-RW drive
- Optional on-board storage for thermal printer, integrated speakers
- Integrated locking mechanism that provides rolling lock and caster swivel lock
- Integrated cable management
- Air filters easily accessible and removable for cleaning
- Front and rear handles
- Optional probe cable tray
- Integrated gel holder
- Six probe holders (four standard, two optional)

User Interface

Operator Keyboard

- Ergonomic FlexFit design with left/right swivel and up/down arm mobility of keyboard and monitor permitting both physiological sitting or standing operation
- Alphanumeric keyboard with support for eight character sets
- Ergonomic full size hard key layout
- Interactive back lighting for control panel
- Six TGC pods
- Image manager on the touch screen for quick review of image clipboard contents and easy export of images and loops to remote archives or media

Touch Screen

- 10.1" ultra-high-resolution, wide-screen format, color, multi-touch LCD screen
- Interactive user-configurable dynamic software menu

LCD Monitor

- 21.5" wide-screen, High-Definition (HD), flicker-free LCD display
- 256 shades of gray and 16.7 million simultaneous colors available
- Articulating monitor arm
- LCD translation (independent of console)
  - 325 mm horizontal bidirectional
  - 150 mm vertical height adjustment

- Swivel to side viewing direction
- +25˚/ -90˚ vertical tilt on LCD
- Fold down and rotation lock mechanism for transportation
- Horizontal viewing angle of more than 170°
- Resolution: 1920 x 1080 pixels
- Digital brightness adjustment

System Overview

Operating System

- Windows® 10

Applications (probe dependent)

Abdominal, Cardiac (adult and pediatric), Musculo-skeletal (conventional and superficial), Small Organ, Pediatric, Obstetrics/Gyn, Fetal (heart and body), Transesophageal, Peripheral Vascular, Transvaginal, Transrectal, Intraoperative, Adult, and Neonatal Cephalic

Scanning Methods

- Electronic sector
- Electronic convex
- Electronic linear
- CW pencil

Transducer Types

- Sector phased array
- Convex array
- Linear array
- CW Pencil
- Endovaginal
- TEE

Operating Modes

- 2D tissue
- 2D color flow
- 2D angio flow
- Color M-mode
- Tissue velocity M-mode
- Continuous wave Doppler
- Tissue M-mode
- Pulsed wave Doppler with high PRF
- Anatomical M-mode
- Curved anatomical M-mode (optional)
- Tissue velocity imaging
- Tissue tracking (optional)
- Tissue synchronization imaging (optional)
- Strain imaging (optional)
- Strain rate imaging (optional)
- Tissue Doppler imaging
- Blood flow imaging (optional)
- Blood flow angio flow imaging (optional)
- Smart Stress (optional)
- Auto EF (optional)
- AFI Automated Function Imaging (optional)
- Coded phase inversion LVO contrast (optional)
- Compound imaging
- Scan Assist Pro
- Image archive
- Z scores
- Fetal trending
- Renal calculations
- On-board report package

System Options

- Curved AMM
- Blood flow imaging
- Blood flow imaging with Angio
- B-flow
- Tissue tracking
- TSI
- Strain imaging
- Strain rate imaging
- Smart Stress
- AFI
- Auto EF
- Q-Analysis
- LOGIQ View
- IMT
- LVO contrast
- DICOM® connectivity
- DICOM viewer embedded on media
- Extra probe holder
- Paper tray
- Probe cable tray
- Smart Standby (optional)

Peripheral Options

- DVD RW drive
- B/W video printer
- USB memory stick
- 1 TB USB hard drive
- Three-pedal configurable footswitch

Display Modes

- Live and stored display format: Full size and split screen, both with thumbnails, for still and cine
- Review image format: 4 x 3 and thumbnails for still and cine
- Simultaneous capability
  - 2D + PW
  - 2D + CFM/TVI + PW
  - 2D + CFM/TVI
  - 2D + CFM/Angio/TVI/SRI/TT/SI/TSI (optional)
  - 2D + M/AMM/CAMM (optional)
  - 2D + CFM/Angio/TVI/SRI/TT/SI/TSI + M/AMM/CAMM (optional)
  - Real-time duplex or triplex mode
  - Compound + M/CFM/PW
  - 2D + color split screen (simultaneous mode)
- Selectable alternating modes
  - 2D or compound + PW
  - 2D + CW
  - 2D or compound + CFM/PW
  - 2D + CFM + CW
- Multi-image (split/quad screen)
  - Live and/or frozen
  - Independent cine playback
- Timeline display
  - Independent 2D (or compound) + PW/CW/M display
  - A choice of display formats with various sizes of 2D + PW/CW/M
- Top/bottom selectable format

Display Annotation

- Patient name: First, last and middle
- Patient ID
- Age, sex and birth date
- Hospital name
- Date format: Three types selectable
  - MM/DD/YYYY, DD/MM/YYYY, YYYY/MM/DD

- Time format: Two types selectable
  - 24 hours, 12 hours
- Gestational age from LMP/EDD/GA
- Probe name
- Map names
- Probe orientation
- Depth scale marker
- Focal zone markers
- Image depth
- Zoom depth
- B-mode
  - Gain
  - Dynamic range
  - Imaging frequency
  - Frame averaging
  - Gray map
- M-mode
  - Gain
  - Frequency
  - Dynamic range
  - Time scale
- Doppler mode
  - Gain
  - Angle
  - Sample volume size and position
  - Wall filter (Low Velocity Reject)
  - Velocity and/or frequency scale
  - Spectrum inversion
- Time scale
  - PRF
  - Doppler frequency
- Color flow Doppler mode
  - Frame rate
  - Frame averaging
  - Sample volume size
  - Color scale
  - Power
  - Color baseline
  - Color threshold marker
  - Color gain
  - PDI
- Acoustic frame rate
- CINE indicator, image number/frame number
- Bodymarks: Multiple human anatomical structures
- Application name
- Measurement results
- Operator message
- Displayed acoustic output
  - TIS: Thermal Index Soft Tissue
  - TIC: Thermal Index Cranial (Bone)
  - TIB: Thermal Index Bone
- MI: Mechanical Index
- Power output in dB
- Biopsy guide line and zone
- Heart rate
- Trackball-driven annotation arrows
- Active mode display
- Stress protocol parameters
- Parameter annotation follow ASE standard
- Free text with word library
- Image orientation marker

General System Parameters

System Setup

- Pre-programmable M&A and annotation categories
- Different user presets per probe/ application may be stored for quick access
- User programmable preset capability with administrator preset protection
- Factory default preset data
- Languages: English, French, German, Spanish, Italian, Portuguese, Swedish, Danish, Norwegian, Polish, Finnish, Greek, Russian
- User-defined annotations
- Body patterns
- Customized comment home position

Comprehensive User Manual Available on Board

Available through touch panel utility page. User manual and service manual are included on CD with each system. A printed manual is available upon request.

CINE Memory/Image Memory

- 500 MB of cine memory
- Selectable cine sequence for cine review
- Measurements/calculations and annotations on cine playback
- Scrolling timeline memory
- Dual-image cine display
- Quad-image cine display
- CINE gauge and cine image number display
- CINE review loop
- CINE review speed

Image Storage

- On-board database of patient information from past exams
- Storage formats:
  - DICOM – compressed/uncompressed, single/multi-frame, with/without raw data
  - "Save As" JPEG, MPEG, AVI
- Storage devices:
  - USB memory stick
  - CD-RW storage: 700 MB
  - DVD storage: -R (4.7 GB)
  - Mobile hard drive storage: 1 TB
- Compare old images with current exam
- Reload of archived data sets

Connectivity and DICOM

- Ethernet network connection
- DICOM (optional)
  - Verify
  - Print
  - Store
  - Modality worklist
  - Storage commitment
  - Modality Performed Procedure Step (MPPS
  - Off-network DICOM spooler
  - Query/Retrieve
  - Structured reporting – compatible with adult cardiac, pediatric, vascular and abdominal
  - Media store of structured reporting
- DICOM media exchange
- InSite™ ExC capability for remote service/access

EchoPAC™ Connectivity

- Connectivity and image analysis capability of Vivid T9 from EchoPAC PC
- EchoPAC PC allows instant access to ultrasound raw data provided by the system
- Comprehensive review, analysis and post-processing capabilities on EchoPAC PC
- Advanced quantitative analysis and post-processing capabilities
- Q-analysis on raw data from Vivid T9 on EchoPAC PC
- Three user levels help organize data security requirements

Image and Data Management

- Exceptional workflow with instant access data management
- DICOM-SR standard structured reporting mechanism (optional)
- Support for transfer of the proprietary raw data files within the DICOM standard, configurable per mode.
- 2D, CFM or TVI data at maximum frame rate may be reviewed by scrolling or by running cine loops (can contain more than 1,000 images for imaging modes)
- Image clipboard for stamp-size storage and review of stored images and loops
- Built-in patient archive with images/loops, patient information, measurements and reports
- Structured findings report tools help support efficient text entries with direct editing of findings text, usability enhancements, new configuration options and conclusion section
- User can enter normal values which are then compared to actual measurements
- Configurable HTML-based report function
- Report templates can be customized on board
- ASE-based default text modules (English), user customizable
- Internal archive data can be exported to removable image storage through DICOM media
- Internal hard disk – for storing programs, application defaults, ultrasound images and patient archive
- All data storage is based on ultrasound raw data, allowing to change gain, baseline, color maps, sweep speeds, etc., for recalled images and loops
- DICOM media – read/write images on DICOM format
- Alphanumeric data can be exported in Microsoft® Excel® compatible format
- JPEG export for still frames
- AVI and MPEG export for cineloops
- Ability to transfer Systole Only for Stress echo loops to PACS

Tricefy® Cloud Service

- Can serve as long-term archive
- Can be used to share examinations with colleagues for information or collaboration
- Can be used to share images with patients

Insite™ Express Connection (ExC)

Enables Remote Service and Training

- Easy, flexible and secure connectivity configuration. The "Contact GE" on-screen button directly generates a real-time service request to the GE online engineering or application specialist. It takes a snapshot (e.g., error logs, setup files) of the system at the time of the service request to enable analysis of problem before customer contact
- Virtual Console Observation (VCO) enables the customer to allow desktop screens to be viewed and controlled remotely over the encrypted tunnel to enable real-time training, device configuration and clinical application support
- Operation of Insite Express Connection is dependent on the infrastructure being available – check with your local GE service representative
- File transfer enables the customer (biomed or clinician) to directly transfer system information (e.g., system logs, images, parametric data) to GE product engineering teams (no patient data transferred)
- Software reload provides remote application reconstruction and recovery capabilities in the event of system corruption

Self-contained DICOM Viewer

(optional)

- Exams can be transferred to CD/DVD or USB media with an integrated "EZ DICOM CD viewer™"
- Self-contained "EZ DICOM CD viewer™" allows to review exams from media on a standard PC, without installing anything on the host PC

Scanning Parameters

- Digital beamformer with up to 974,026 effective digital channels
- Minimum field-of-view (depth): 1 cm (probe dependent)
- Maximum field-of-view (depth): 33 cm (probe dependent)
- Width range: 10°–168° (probe dependent)
- Continuous dynamic receive focus/continuous dynamic receive aperture
- Adjustable dynamic range, infinite upper level
- Image reverse: Right/left
- Image rotation of 0,° 180°

Tissue Imaging

General

- Variable transmit frequencies for resolution/penetration optimization
- Display zoom with zoom area control
- High-Resolution (HR) Zoom – concentrates all image acquisition power into selected Region of Interest (ROI)

- Variable contour filtering – for edge enhancement
- Depth range up to 30 cm – (probe specific)
- Selectable grayscale parameters (availability preset-dependent): Gain, reject, DDP, clarity, dynamic range and compress – can be adjusted in live, digital replay and image clipboard recall
- Automatically calculated TGC curves helps reduce operator interaction
- Automatically calculated lateral gain

2D Mode

- Sector tilt and width control
- Frame rate in excess of 1,000 fps, depending on probe, settings and applications
- Coded octave imaging with coded phase inversion – GE 3rd generation harmonic tissue imaging providing enhanced lateral and contrast resolution as compared to previous generation GE products. Features help reduce noise, help improve wall definition and axial resolution, making it well suited for a wide variety of patient groups
- Confocal imaging – allows for multiple transmit focal zones over range of view and a high vector density, probes dependent
- Automatic tissue optimization – single keystroke optimizes immediately, automatically and dynamically different grayscale settings with the goal of signal independent uniform gain and contrast distribution
- UD Clarity and UD Speckle reduce imaging – an advanced image processing technique to help reduce speckle in real time examining the relative difference between neighboring pixel values and determining whether the grayscale variations have a sharp difference, follow a trend, or are random in nature
- Variable image width – a reduction either increases frame rate or increases the number of focal zones while maintaining the frame rate – application dependent
- Multiple-angle compound imaging – multiple co-planar images from different angles combined into a single image in real time to help improve border definition, contrast resolution, and reducing angular dependence of border or edge as compared to previous generation GE products
- LOGIQ View (optional) – provides the ability to construct and view a static 2D image with wider field-of-view of a given transducer. This allows viewing and measurements of anatomy that is larger than what would fit in a single image
- Virtual convex allows a wider field-of-view in the depth and aims to enhance image quality on linear probes
- Virtual apex provides a wider field-of-view with phased array probes, effective at certain imaging views where a wide near field may be preferred
- L/R and up/down invert, in live, digital replay or image clipboard recall
- Digital replay for retrospective review or automatic looping of images, allowing for adjustment of parameters such as gain, reject, anatomical M-mode, persistence and replay speed
- Data dependent processing performs temporal processing which helps reduce random noise but leaves motion of significant tissue structures largely unaffected – can be adjusted even in digital replay
- 256 shades of gray
- Colorized 2D-mode, user-selectable in real-time, digital replay

M-mode

- Trackball steers M-mode line available with all imaging probes – max steering angle is probe dependent
- Simultaneous real-time 2D- and M-mode
- M-mode – image data acquired is combined to give high-quality recording regardless of display scroll speed
- Digital replay for retrospective review of spectral data
- Several top-bottom formats, side-by-side format and time-motion only format – can be adjusted in live or digital replay
- Selectable horizontal scroll speed: 1, 2, 3, 4, 5, 6, 8, 12, 16 seconds across display
- Horizontal scroll can be adjusted in live or digital replay

Anatomical M-mode

- M-mode cursor can be adjusted at any plane
- Curved anatomical M-mode – (optional) free (curved) drawing of M-mode generated from the cursor independent from the axial plane
- Can be activated from live, digital replay or image clipboard recall
- Anatomical color and tissue velocity M-mode
- M&A capability

Color Doppler Imaging

General

- Steerable color Doppler available with all imaging probes – max steering angle is probe dependent
- Trackball-controlled ROI
- Removal of color map from the tissue during digital replay
- Digital replay for retrospective review of color or color M-mode data allowing for adjustment of parameters such as encoding principle, color priority and color gain even on stored data
- PRF settings – user selectable
- Advanced regression wall filter gives efficient suppression of wall clutter
- For each encoding principle, multiple color maps can be selected in live and digital replay – variance maps available
- More than 65,000 simultaneous colors processed, providing a smooth display two-dimensional color maps containing a multitude of color hues

- Simultaneous display of grayscale 2D and 2D with color flow
- Color invert – user selectable in live and digital replay
- Variable color baseline – user selectable in live and digital replay
- Multi-variate color priority function gives delineation of disturbed flows even across bright areas of the 2D-mode image
- Color Doppler frequency can be changed independently from 2D

Color Flow Imaging

- TruSpeed imaging allows either ultra-high frame rate or increased lateral resolution as compared to previous generation GE products
- Frame Rate in excess of 150 fps, depending on probe and settings
- Variable ROI size in width and depth
- User-selectable radial and lateral averaging to help reduce statistical uncertainty in the color velocity and variance estimates
- Data Dependent Processing (DDP) performs temporal processing and display smoothing to help reduce loss of transient events of hemodynamic significance
- Digital replay for retrospective review or automatic looping of color images, allowing for adjustment of parameters such as DDP, encoding principle, baseline shift, color maps, color priority and color gain even on frozen/recalled data
- Application-dependent, multi-variate motion discriminator reduces flash artifacts
- Application-dependent, multi-variate motion discriminator helps reduce flash artifacts
- Dedicated coronary flow application

Color Angio

- Angle-independent mode for visualization of small vessels with enhanced sensitivity compared to standard color flow of previous GE products

Color M-mode

- Variable ROI length and position – user selectable
- User-selectable radial averaging to help reduce statistical uncertainty in the color velocity and variance estimates
- Selectable horizontal scroll speed: 1, 2, 3, 4, 5, 6, 8, 12, 16 seconds across display – can be adjusted during live, digital replay or image clipboard recall
- Real-time 2D image while in color M-mode
- Same controls and functions available as in standard 2D color Doppler

Anatomical Color M-mode

- GE-patented, any plane color M-mode display derived from color Doppler cine loop
- Also applicable to tissue velocity imaging
- M&A capability

B-flow (optional)

- B-flow is a digital imaging technique that provides real-time visualization of vascular hemodynamics by directly visualizing blood reflectors and presenting this information in a grayscale display
- Use of GE-patented techniques to boost blood echoes, and to help preferentially suppress non-moving tissue signals
- B-flow is available for most vascular and shared service applications

Blood Flow Imaging (optional)

- Combines color Doppler with grayscale speckle imaging
- Helps improve delineation of blood flow without bleeding into tissue or vessel wall

Blood Flow Angio Imaging (optional)

- Combines angio with grayscale speckle imaging

Tissue Velocity Imaging

Tissue Velocity Imaging Mode

- Myocardial Doppler imaging with color overlay on tissue image
- Tissue Doppler data can be acquired in background during regular 2D imaging
- The velocity of myocardial segments after entire heart cycle can be displayed in one single image
- Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information
- Quantitative profiles for TVI, tissue tracking, strain and strain rate can be derived (optional)
- Time markers for valve events derived from any TM mode help simplify understanding of signals in velocity traces or curved anatomical M-mode

Tissue Tracking Mode (optional)

- Real-time display of the time integral of TVI for quantitative display of myocardial systolic displacement
- Myocardial displacement is calculated and displayed as a color-coded overlay on the grayscale and M-mode image – different colors represent different displacement ranges

Tissue Synchronization Imaging Mode (optional)

- Parametric imaging which gives information about synchronicity of myocardial motion
- Myocardial segments colored according to time to peak velocity, green for early and red for late peak
- Waveform trace available to obtain quantitative time to peak measurement from TSI Image
- Available in live scanning as well as an offline calculation derived from tissue Doppler data
- Additional features in combination with multi-dimensional imaging option
- Efficient segment specific TSI time measurements

- Immediate bull's eye report
- Automatic calculated TSI synchrony indexes
- TSI surface mapping
- LV synchronization report template
- CRT programming protocol

Strain/Strain Rate Mode (optional)

- Tissue deformation and rate of deformation are calculated and displayed as real-time, color-coded overlay on the 2D image
- Tissue deformation (strain) is calculated and displayed as real-time, color-coded overlay on the 2D Image
- Cine compound calculates and displays cineloops generated from a temporal averaging of multiple consecutive heart cycles
- Anatomical M-mode and curved anatomical M-mode (optional) displays (SI and SRI)

Spectral Doppler

General

- Operates in PW, HPRF and CW modes
- Trackball steerable Doppler available with all imaging probes – max steering angle is probe dependent
- Selectable Doppler frequency for enhanced optimization
- High-quality, real-time duplex or triplex operation in all Doppler modes, in PW, and for all velocity settings
- Frame rate control for optimized use of acquisition power between spectrum, 2D and color Doppler modes in duplex or triplex modes
- Very fast and flexible spectrum analysis with an equivalent DFT rate of 0.2 ms
- Dynamic gain compensation for display of flows with varying signal strengths over the cardiac cycle to help improve ease of use
- Dynamic reject gives consistent suppression of background – user selectable in real-time, digital replay or image clipboard recall
- Digital replay for retrospective review of spectral Doppler data
- Several top-bottom formats, side-by-side format and time motion only format – can be adjusted in live or digital replay
- Selectable horizontal scroll speed: 1, 2, 3, 4, 5, 6, 8, 12 seconds across display – can be adjusted in live or digital replay
- Adjustable spectral Doppler display parameters: Gain, reject, compress, color maps – can be adjusted in live or digital replay
- User-adjustable baseline shift – in live, digital replay and image clipboard recall
- Adjustable velocity scale
- Angle correction with automatic adjustment of velocity scale – in live, digital replay and image clipboard recall
- Stereo speakers mounted in the front panel
- Display annotations of frequency, mode, scales, Nyquist limit, wall filter setting, angle correction, acoustic power indices
- Compound in duplex

PW/HPRF Doppler

- Automatic HPRF Doppler maintains its sensitivity even for shallow depths and with high PRF's
- Digital velocity tracking Doppler employs processing in range and time for high-quality spectral displays
- Adjustable sample volume size of 1-16 mm (probe dependent)
- Maximum sample volume depth 30 cm

CW Doppler

- Highly sensitive steerable CW available with all phased array probes

Contrast Imaging (optional)

LVO Contrast[1] – Enables contrast applications intended for imaging of the left ventricle:

LV contrast (3Sc-RS probe) enhances delineation of the LV border in combination with ultrasound contrast agents. The new implementation of GE's Coded Phase Inversion (CPI) provides high-resolution detection of contrast in the LV cavity and excellent suppression of myocardial tissue signals.

Physiological Traces

- Integrated three-lead ECG
- ECG lead selection
- High-resolution display of the ECG trace
- User adjustable trace gain and position controls
- User pre-settable trace gain/position control
- Automatic QRS complex detection with user ability to modify QRS trigger positions

Automatic Optimization

- Optimize B-mode image to help improve contrast resolution, gain, TGC and grayscale
- Auto-spectral optimize – adjustments baseline, PRF (on live image) and angle correction

Measurement and Analysis (M&A)

- Personalized measurement protocols allow individual set and order of M&A items
- Measurements can be labeled seamlessly by using protocols or post assignments
- Measurements assignable to protocol capability
- Parameter annotation follow ASE standard
- Seamless data storage and report creation
- User-assignable parameters

1 *Schering developed harmonic imaging for supporting contrast agent imaging.*

- Comprehensive set of adult and pediatric cardiac measurements and calculations to help assess dimensions, flow properties and other functional parameters of the heart
- Comprehensive set of shared service measurements and calculations covering vascular, abdominal, obstetrics and other application areas
- Configuration package to set up a customized set and sequence of measurements to use, defining user-defined measurements and changing settings for the factory-defined measurements
- Stress echo support allowing wall motion scoring and automatic stress level labeling of measurements
- Support for measuring on DICOM images
- Cardiac Auto Doppler automatically provides Doppler measurement results for the most common parameters, with minimal user guidance
- Automatic Doppler trace functionality for use in non-cardiac applications in both live and replay
- Worksheet for review, edit and deletion of performed measurements
- Reporting support allowing a configurable set of measurements to be shown in the exam report
- DICOM SR export of measurement data

Intima Media Thickness (IMT) Measurements (optional)

- Automatic measurements (patent pending) of carotid artery Intima-Media Thickness (IMT) on any acquired frame
- On-board IMT package facilitates non-interrupted workflow – fully integrated with M&A, worksheet, archiving and reporting functions
- Algorithm provides robust, quick, reliable measurements which can be stored to the on-board archive for review and reporting
- IMT measurement can be made from frozen images or images retrieved from archive
- IMT package supports measurements of different regions of the intima in the carotid vessel (e.g., Lt./Rt./CCA/ICA etc.)
- Frame for IMT measurement can be selected in relation to the ECG waveform

Z-Scores

- Support for three sets of user-selectable Z score publications[2] covering the most common pediatric dimension measurements

Quantitative Analysis Package (Q-Analysis) (optional)

- Traces for tissue velocity or derived parameters (strain rate, strain, displacement) inside defined regions of interest as function of time
- Contrast analysis with traces for grayscale intensity or angio power inside defined regions of interest as function of time
- Curved anatomical M-mode display allowing an M-mode along an arbitrary curve in a 2D image
- Sample-area points may be dynamically anchored to move with the tissue when running the cineloop
- Cine compound displays cineloops generated from a temporal averaging of multiple consecutive heart cycles

Automated Function Imaging (AFI 2.0) (optional)

- Second generation parametric imaging tool which gives quantitative data for global and segmental strain
- Allows comprehensive assessment at a glance by combining three longitudinal views into one comprehensive bulls-eye view
- Integrated into M&A package with specialized report templates
- 2D strain based data moves into clinical practice
- Simplified and flexible workflow with fully automated ROI tracing (if configured), adaptive ROI width and combined display of traces from all segments
- User-selectable endo or full wall global strain values displayed
- Random sequence of analysis of the three views supported
- Ability to exit tool after one or two views completed
- Applicable to transthoracic 2D and to TEE data
- Integrated AutoEF calculation

Automated Ejection-Fraction Calculation (AutoEF 2.0) (optional)

- Second generation automated EF measurement tool based on 2D-speckle tracking algorithm and on Simpson
- Integrated into M&A package with worksheet summary

Generic Measurements

- BSA (Body Surface Area)
- MaxPG (Maximum Pressure Gradient)
- MeanPG (Mean Pressure Gradient)
- % Stenosis (Stenosis Ratio)
- PI (Pulsatility Index)
- RI (Resistivity Index)
- HR (Heart Rate) – beats/minute
- A/B Ratio (Velocities Ratio)
- TAMAX (Time Averaged Maximum Velocity) – Trace method is Peak or Manual
- TAMIN (Time Averaged Minimum Velocity) – Trace method is Floor

2 *C Kampmann, C M Wiethoff, A Wenzel, et. al. Normal Values of M Mode Echocardiographic Measurements of More Than 2000 Healthy Infants and Children in Central Europe. Heart 2000; 83; 667-672.*

M Cantinotti, MD; M Scalese, MS; B Murzi, MD; et. al. Echocardiographic Nomograms for Chamber Diameters and Areas in Caucasian Children. Journal of American Society of Echocardiography December 2014; Volume 27, Issue 12; 1279-1292.e2.

M Cantinotti, MD; M Scalese, MS; B Murzi, MD; et. al. Echocardiographic Nomograms for Ventricular, Valvular and Arterial Dimensions in Caucasian Children with a Special Focus on Neonates, Infants and Toddlers. Journal of American Society of Echocardiography February 2014; Volume 27, Issue 2; 179-191.e2.

- TAMEAN (Time Averaged Mean Velocity) – Trace method is Mean
- Volume

OB/GYN Application Module

- OB package for fetal growth analysis containing more than 100 biometry tables
- Dedicated OB/GYN reports
- Fetal graphical growth charts
- Growth percentiles
- Multi-gestational calculations (up to four)
- Programmable OB tables
- Expanded worksheets
- User-selectable fetal growth parameters based on European, American or Asian methods charts
- GYN package for ovary and uterus measurements and reporting

OB Measurements/Calculations

- Gestational age by:
  - GS (Gestational Sac)
  - CRL (Crown Rump Length)
  - FL (Femur Length)
  - BPD (Biparietal Diameter)
  - AC (Abdominal Circumference)
  - HC (Head Circumference)
  - APTD x TTD (Anterior/Posterior Trunk Diameter by Transverse Trunk Diameter)
  - LV (Length of Vertebra)
  - FTA (Fetal Trunk Cross-sectional Area)
  - HL (Humerus Length)
  - BD (Binocular Distance)
  - FT (Foot Length)
  - OFD (Occipital Frontal Diameter)
  - TAD (Transverse Abdominal Diameter)
  - TCD (Transverse Cerebellum Diameter)
  - THD (Thorax Transverse Diameter)
  - TIB (Tibia Length)
  - ULNA (Ulna Length)
- Estimated Fetal Weight (EFW) by:
  - AC, BPD
  - AC, BPD, FL
  - AC, BPD, FL, HC
  - AC, FL
  - AC, FL, HC
  - AC, HC
  - EFBW
- Calculations and Ratios
  - FL/BPD
  - FL/AC
  - FL/HC
  - HC/AC
  - CI (Cephalic Index)
  - AFI (Amniotic Fluid Index)
  - CTAR (Cardio-Thoracic Area Ratio)
- Measurements/calculations by: ASUM, ASUM 2001, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chitty, Eik-Nes, Ericksen, Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kurtz, Mayden, Mercer, Merz, Moore, Nelson, Osaka University, Paris, Rempen, Robinson, Shepard, Shepard/Warsoff, Tokyo University, Tokyo/Shinozuka, Yarkoni
- Fetal graphical trending
- Growth percentiles
- Multi-gestational calculations (four)
- Fetal qualitative description (anatomical survey)
- Fetal environmental description (biophysical profile)
- Programmable OB tables
- Over 20 selectable OB calculations
- Expanded worksheets

GYN Measurements/Calculations

- Right ovary length, width, height
- Left ovary length, width, height
- Uterus length, width, height
- Cervix length, trace
- Ovarian volume
- ENDO (endometrial thickness)
- Ovarian RI
- Uterine RI
- Follicular measurements
- Summary reports

Abdominal Calculations

- Splenic index
- Liver volume, mass, cyst
- Pancreas
- CBD
- GB wall, length
- Aorta prox, mid, dist
- Aorta iliac
- Spleen volume
- Bladder, post void bladder volume
- Renal
- Cortex thickness
- Mesenteric (CA, SMA, IMA)

Vascular Calculations

- RT ECA (Right External Carotid Artery Velocity)
- RT CCA (Right Common Carotid Artery Velocity)
- RT ICA (Right Internal Carotid Artery Velocity)
- RT ICA/CCA (Right Internal Carotid Artery Velocity/Common Carotid Artery Velocity Ratio)
- LT ECA, LT CCA, LT BIFURC, LT ICA, LT ICA/CCA (same as above, for Left Carotid Artery)
- RT BULB (Right Bulbus Artery), RT VERT (Right Vertebral Aretry), RT SUBC (Right Subclavian Artery), RT INN (Right Inn Artery)
- LT BULB, LT VERT, LT SUBC, LT INN
- Stent, pre-stent, post-stent
- A/B Ratio (Velocities Ratio)
- % Stenosis (Stenosis Ratio)
- S/D Ratio (Systolic Velocity/Diastolic Velocities Ratio)
- PI (Pulsatility Index)
- RI (Resistivity Index)
- HR (Heart Rate) – beats/minute
- UEV (Upper Extremity Vein velocities): IJV, SUBC, Axill V, Bas V, RV, UV, Ves, Pseudo, AVF, CephV
- UEA (Upper Extremity Artery velocities): Inn, SUBC, Axill, BA, RA, UA, Pseudo, AVF, Ves

- LEV (Lower Extremity Vein velocities): CFV, Saph FemJunc V, PopV, PTV, ATV, FV, GSV Calf, GSV Thigh, GSV Access, LSV, Saph PopJunc
- LEA (Lower Extremity Artery velocities): EIA, SFA, Pop, PTA, Peron, DPA, ATA,CFA, DFALEA
- MCA (Middle Cerebral Artery), ACA (Anterior Cerebral Artery), PCA (Posterior Cerebral Artery), AcomA (Anterior Communicating Artery), PComA (Posterior Communicating Artery), Basilar (Basilar Artery), Ves

Cardiac Measurements

- %FS (LV Fractional Shortening)
- %IVS Thck (IVS Fractional Shortening)
- %LVPW Thck (LV Posterior Wall Fractional Shortening)
- Ao Arch Diam (Aortic Arch Diameter)
- Ao asc (Ascending Aortic Diameter)
- Ao Desc Diam (Descending Aortic Diameter)
- Ao Isthmus (Aortic Isthmus)
- Ao Root Diam (Aortic Root Diameter)
- AR ERO (PISA: Regurgitant Orifice Area)
- AR Flow (PISA: Regurgitant Flow)
- AR PHT (AV Insuf. Pressure Half Time)
- AR Rad (PISA: Radius of Aliased Point)
- AR RF (Regurgitant Fraction over the Aortic Valve)
- AR RV (PISA: Regurgitant Volume Flow)
- AR Vel (PISA: Aliased Velocity)
- AR Vmax (Aortic Insuf. Peak Velocity)
- AR VTI (Aortic Insuf. Velocity Time Integral)
- ARed max PG (Aortic Insuf. End-Diastole Pressure Gradient)
- ARed Vmax (Aortic Insuf. End-Diastolic Velocity)
- AV Acc Slope (Aortic Valve Flow Acceleration)
- AV Acc Time (Aortic Valve Acceleration Time)
- AV AccT/ET (AV Acceleration to Ejection Time Ratio)
- AV EOA I (VTI) (Aortic Valve Effective Orifice Area Index by Continuity Equation VTI)
- AV EOA I Vmax (Aortic Valve Effective Orifice Area Index by Continuity Equation Peak V)
- AV CO (Cardiac Output by Aortic Flow)
- AV Cusp (Aortic Valve Cusp Separation, 2D)
- AV Dec Time (Aortic Valve Deceleration Time)
- AV Diam (Aortic Diameter, 2D)
- AV max PG (Aortic Valve Peak Pressure Gradient)
- AV mean PG (Aortic Valve Mean Pressure Gradient)
- AV SV (Stroke Volume by Aortic Flow)
- AV Vmax (Aortic Valve Peak Velocity)
- AV Vmean (AV Mean Velocity)
- AV VTI (Aortic Valve Velocity Time Integral)
- AVA (Vmax) (AV Area by Continuity Equation by Peak V)
- AVA (VTI) (AV Area by Continuity Equation VTI)
- AVA Planimetry (Aortic Valve Area)
- AVET (Aortic Valve Ejection Time)
- CO (Teich) (Cardiac Output, M-mode, Teicholtz)
- D-E Excursion (MV Anterior Leaflet Excursion)
- E' Avg (Averaged early diastolic mitral valve annular velocity)
- E' Lat (Early diastolic mitral valve lateral annular velocity)
- E' Sept (Early diastolic mitral valve septal annular velocity)
- E/E' Avg (Mitral inflow E velocity to E' Avg ratio)
- E/E' Lat (Mitral inflow E velocity to E' Lat ratio)
- E/E' Sept (Mitral inflow E velocity to E' Sept ratio)
- EDV (Cube) (Left Ventricle Volume, Diastolic, 2D, Cubic)
- EF (A-L A2C) (Ejection Fraction 2CH, Single Plane, Area-Length)
- E-F Slope (Mitral Valve E-F Slope)
- EPSS (E-Point-to-Septum Separation, M-mode)
- ERO (Effective Regurgitant Orifice)
- ESV (Cube) (Left Ventricle Volume, Systolic, 2D, Cubic)
- HR (Heart Rate, 2D, Teicholtz)
- IVC (Inferior Vena Cava)
- IVCT (Isovolumic Contraction Time)
- IVRT (Isovolumic Relaxation Time)
- IVSd (Interventricular Septum Thickness, Diastolic, 2D)
- VSs (Interventricular Septum Thickness, Systolic, 2D)
- LA Diam (Left Atrium Diameter, 2D)
- LA Major (Left Atrium Major)
- LA Minor (Left Atrium Minor)
- LA/Ao (LA Diameter to AoRoot Diameter Ratio, 2D)
- LAAd (A2C) (Left Atrium Area, Apical 2C)
- LAEDV (A-L) (LA End Diastolic Volume, Area-Length)
- LAEDV Index (A-L) (LA End Diastolic Volume Index, Area-Length)
- LAESV (A-L) (LA End Systolic Volume, Area-Length)
- LAESV Index (A-L) (LA End Systolic Volume Index, Area-Length)
- LAEDV MOD (LA End Diastolic Volume MOD)
- LAESV MOD (LA End Systolic Volume MOD)
- LIMP (Left Index of Myocardial Performance)
- LVA (s) (Left Ventricular Area, Systolic, 2CH)
- LVAd (A2C) (Left Ventricular Area, Diastolic, 2CH)
- LVAd (sax) (LV area, SAX, Diastolic)
- LVAend (d) (LV Endocardial Area, SAX)

- LVAepi (d) (LV Epicardial Area, SAX)
- LVAs (A4C)
  (Left Ventricular Area, Systolic, 4CH)
- LVAs (sax) (LV area, SAX, Systolic)
- LVd Mass (LV Mass, Diastolic, 2D)
- LVd Mass (LV Mass, Diastolic, M-mode)
- LVd Mass Index
  (LV Mass Index, Diastolic, 2D)
- LVEDV (A-L A2C) (LV Volume, Diastolic, 2CH, Area-Length)
- LVESV (A-L A2C) (LV Volume, Systolic, 2CH, Area-Length)
- LVET (Left Ventricle Ejection Time)
- LVIDd
  (LV Internal Dimension, Diastolic, 2D)
- LVIDs
  (LV Internal Dimension, Systolic, 2D)
- LVLd (apical)
  (Left Ventricular Length, Diastolic, 2D)
- LVLs (apical)
  (Left Ventricular Length, Systolic, 2D)
- LVOT Area
  (Left Ventricle Outflow Tract Area)
- LVOT CO
  (Cardiac Output by Aortic Flow)
- LVOT Diam (Left Ventricular Outflow Tract Diameter)
- LVOT max PG
  (LVOT Peak Pressure Gradient)
- LVOT mean PG
  (LVOT Mean Pressure Gradient)
- LVOT SI
  (Stroke Volume Index by Aortic Flow)
- LVOT SV
  (Stroke Volume by Aortic Flow)
- LVOT Vmax (LVOT Peak Velocity)
- LVOT Vmean (LVOT Mean Velocity)
- LVOT VTI (LVOT Velocity Time Integral)
- LVPWd (Left Ventricular Posterior Wall Thickness, Diastolic, 2D)
- LVPWs (Left Ventricular Posterior Wall Thickness, Systolic, 2D)
- LVs Mass (LV Mass, Systolic, 2D)
- LVs Mass Index
  (LV Mass Index, Systolic, 2D)
- LAAd (A2C) (Left Atrium Area, Apical 2C)
- MCO (Mitral Valve closure to Opening)
- MP Area (Mitral Valve Prosthesis)
- MR Acc Time
  (MV Regurg. Flow Acceleration)
- MR ERO
  (PISA: Regurgitant Orifice Area)
- MR Flow (PISA: Regurgitant Flow)
- MR max PG
  (Mitral Regurg. Peak Pressure Gradient)
- MR Rad (PISA: Radius of Aliased Point)
- MR RF (Regurgitant fraction over the Mitral Valve)
- MR RV (PISA: Regurgitant Volume Flow)
- MR Vel (PISA: Aliased Velocity)
- MR Vmax (Mitral Regurg. Peak Velocity)
- MR Vmean
  (Mitral Regurg. Mean Velocity)
- MR VTI
  (Mitral Regurg. Velocity Time Integral)
- MV A Dur
  (Mitral Valve A-Wave Duration)
- MV A Velocity (MV Velocity Peak A)
- MV Acc Slope
  (Mitral Valve Flow Acceleration)
- MV Acc Time
  (Mitral Valve Acceleration Time)
- MV Acc/Dec Time
  (MV: Acc.Time/Decel.Time Ratio)
- MV an diam
  (Mitral Valve Annulus Diameter, 2D)
- MV CO (Cardiac Output by Mitral Flow)
- MV Dec Slope
  (Mitral Valve Flow Deceleration)
- MV Dec Time
  (Mitral Valve Deceleration Time)
- MV E Velocity (MV Velocity Peak E)
- MV E/A Ratio
  (Mitral Valve E-Peak to A-Peak Ratio)
- MV max PG
  (Mitral Valve Peak Pressure Gradient)
- MV mean PG
  (Mitral Valve Mean Pressure Gradient)
- MV PHT
  (Mitral Valve Pressure Half Time)
- MV Reg Frac
  (Mitral Valve Regurgitant Fraction)
- MV SI
  (Stroke Volume Index by Mitral Flow)
- MV SV (Stroke Volume by Mitral Flow)
- MV Time to Peak
  (Mitral Valve Time to Peak)
- MV Vmax (Mitral Valve Peak Velocity)
- MV Vmean (MV Mean Velocity)
- MV VTI
  (Mitral Valve Velocity Time Integral)
- MVA (Mitral Valve Area)
- MVA By PHT
  (Mitral Valve Area according to PHT)
- MVA by plan (Mitral Valve Area, 2D)
- MVET (Mitral Valve Ejection Time)
- P Vein A (Pulmonary Vein Velocity Peak A) – reverse
- P Vein A Dur
  (Pulmonary Vein A-Wave Duration)
- P Vein D (Pulmonary Vein End-Diastolic Peak Velocity)
- P Vein S (Pulmonary Vein Systolic Peak Velocity)
- PAEDP
  (Pulmonary Artery Diastolic Pressure)
- PE(d) (Pericard Effusion, M-mode)
- PEs (Pericard Effusion, 2D)
- PR max PG (Pulmonic Insuf. Peak Pressure Gradient)
- PR mean PG (Pulmonic Insuf. Mean Pressure Gradient)
- PR PHT
  (Pulmonic Insuf. Pressure Half Time)
- PR Vmax
  (Pulmonic Insuf. Peak Velocity)
- PR VTI (Pulmonic Insuf. Velocity Time Integral)
- PRend max PG (Pulmonic Insuf. End-Diastole Pressure Gradient)
- PRend Vmax (Pulmonic Insuf. End-Diastolic Velocity)
- Pulmonic Diam
  (Pulmonary Artery Diameter, 2D)
- PV Acc Slope
  (Pulmonic Valve Flow Acceleration)
- PV Acc Time
  (Pulmonic Valve Acceleration Time)

- PV Acc Time/ET Ratio (PV Acceleration to Ejection Time Ratio)
- PV an diam (Pulmonic Valve Annulus Diameter, 2D)
- PV Ann Area (Pulmonic Valve Area)
- PV CO (Cardiac Output by Pulmonic Flow)
- PV max PG (Pulmonic Valve Peak Pressure Gradient)
- PV mean PG (Pulmonic Valve Mean Pressure Gradient)
- PV SV (Stroke Volume by Pulmonic Flow)
- PV Vmax (Pulmonary Artery Peak Velocity)
- PV Vmean (PV Mean Velocity)
- PV VTI (Pulmonic Valve Velocity Time Integral)
- PVA (VTI) (Pulmonary Artery Velocity Time Integral)
- PVein S/D Ratio (Pulmonary Vein SD Ratio)
- PVET (Pulmonic Valve Ejection Time)
- PVPEP (Pulmonic Valve Pre-Ejection Period)
- PVPEP/ET Ratio (PV Pre-Ejection to Ejection Time Ratio)
- Qp/Qs (Pulmonic-to-Systemic Flow Ratio)
- RA Major (Right Atrium Major, 2D)
- RA Minor (Right Atrium Minor, 2D)
- RAA (d) (Right Atrium Area, 2D, Diastole)
- RAA (s) (Right Atrium Area, 2D, Systole)
- RAEDV A2C (Right Atrium End Diastolic Volume, Apical 2 Chamber)
- RAESV A-L (RA End Systole Volume [A-L])
- RALd (Right Atrium Length, Diastole)
- RALs (RA Length, Systole)
- RIMP (Right Index of Myocardial Performance)
- RJA (A4C) (Regurgitant Jet Area)
- RJA/LAA (Regurgitant Jet Area ratio RJA/LAA)
- RV Major (Right Ventricle Major)
- RV Minor (Right Ventricle Minor)
- RV S' (Tricuspid annulus systolic excursion velocity)
- RVAWd (Right Ventricle Wall Thickness, Diastolic, 2D)
- RVAWs (Right Ventricle Wall Thickness, Systolic, 2D)
- RVET (Right Ventricle Ejection Time)
- RVIDd (Right Ventricle Diameter, Diastolic, 2D)
- RVIDs (Right Ventricle Diameter, Systolic, 2D)
- RVOT Area (Right Ventricle Outflow Tract Area)
- RVOT Diam (RV Output Tract Diameter, 2D)
- RVOT Diam (RV Output Tract Diameter, M-Mode)
- RVOT max PG (RVOT Peak Pressure Gradient)
- RVOT meanPG (RVOT Mean Pressure Gradient)
- RVOT SI (LV Stroke Volume Index by Pulmonic Flow)
- RVOT SV (Stroke Volume by Pulmonic Flow)
- RVOT Vmax (RVOT Peak Velocity)
- RVOT Vmean (RVOT Mean Velocity)
- RVOT VTI (RVOT Velocity Time Integral)
- RVSP (Right Ventricle Systolic Pressure)
- RVWd (Right Ventricle Wall Thickness, Diastolic, M-mode)
- RVWs (Right Ventricle Wall Thickness, Systolic, M-mode)
- RAA (d) (Right Atrium Area, 2D, Diastole)
- RAA (s) (Right Atrium Area, 2D, Systole)
- SI (A-L A2C) (LV Stroke Index, Single Plane, 2CH, Area-Length)
- SI (A-L A4C) (LV Stroke Index, Single Plane, 4CH, Area-Length)
- SI (Bi-plane) (LV Stroke Index, Bi-plane, MOD)
- SI (bullet) (LV Stroke Index, Bi-plane, Bullet)
- SI (MOD A2C) (LV Stroke Index, Single Plane, 2CH, MOD)
- SI (MOD A4C) (LV Stroke Index, Single Plane, 4CH, MOD)
- SI (Teich) (LV Stroke Index, Teicholtz, 2D)
- SI (Teich) (LV Stroke Index, Teicholtz, M-mode)
- SV (A-L A2C) (LV Stroke Volume, Single Plane, 2CH, Area-Length)
- SV (A-L A4C) (LV Stroke Volume, Single Plane, 4CH, Area-Length)
- SV (Bi-plane) (LV Stroke Volume, Bi-plane, MOD)
- SV (bullet) (LV Stroke Volume, Bi-plane, Bullet)
- SV (MOD A2C) (LV Stroke Volume, Single-plane, 2CH, MOD) – Simpson
- SV (MOD A4C) (LV Stroke Volume, Single-plane, 4CH, MOD) – Simpson
- SV (Cube) (LV Stroke Volume, 2D, Cubic)
- SV (Cube) (LV Stroke Volume, M-mode, Cubic)
- SV (Teich) (LV Stroke Volume, 2D, Teicholtz)
- SV (Teich) (LV Stroke Volume, M-mode, Teicholtz)
- Systemic Diam (Systemic Vein Diameter, 2D)
- Systemic Vmax (Systemic Vein Peak Velocity)
- Systemic VTI (Systemic Vein Velocity Time Integral)
- TAPSE (Tricuspid Annular Plane Systolic Excursion)
- TCO (Tricuspid Valve Closure to Opening)
- TR max PG (Tricuspid Regurg. Peak Pressure Gradient)
- TR mean PG (Tricuspid Regurg. Mean Pressure Gradient)
- TR Vmax (Tricuspid Regurg. Peak Velocity)
- TR Vmean (Tricuspid Regurg. Mean Velocity)

- TR VTI (Tricuspid Regurgitation Velocity Time Integral)
- TV A dur (Tricuspid Valve A-Wave Duration)
- TV A Velocity (Tricuspid Valve A Velocity)
- TV Acc Time (Tricuspid Valve Time to Peak)
- TV Ann Area (Tricuspid Valve Area)
- TV ann diam (Tricuspid Valve Annulus Diameter, 2D)
- TV Area (Tricuspid Valve Area, 2D)
- TV CO (Cardiac Output by Tricuspid Flow)
- TV Dec Slope (Tricuspid Valve Flow Deceleration)
- TV E Velocity (Tricuspid Valve E Velocity)
- TV E/A Ratio (Tricuspid Valve E-Peak to A-Peak Ratio)
- TV max PG (Tricuspid Valve Peak Pressure Gradient)
- TV mean PG (Tricuspid Valve Mean Pressure Gradient)
- TV mean PG (Tricuspid Valve Mean Pressure Gradient)
- TV PHT (Tricuspid Valve Pressure Half Time)
- TV SV (Stroke Volume by Tricuspid Flow)
- TV Vmean (TV Mean Velocity)
- TV VTI (Tricuspid Valve Velocity Time Integral)
- VSD max PG (VSD Peak Pressure Gradient)
- VSD Vmax (VSD Peak Velocity)

Please refer to the Reference Manual for the full list of measurements and calculations for all applications.

Annotations

Body Marks

- Body mark icons for location and position of probe
- Option to automatically activate body mark on freeze
- Easy selection of body marks from touch screen
- Easy selection of body marks for dual-screen layout

Text Annotations

- Easy selection of text annotations from touch screen
- Option to automatically activate annotation on freeze

Scan Assist Pro (optional)

- Customizable automations that assist the user through each step of the scan
- Helps enhance consistency and reduce keystrokes
- Supports selection of all modes, all measurements and dual annotations
- Imaging attributes: Octave, Steer, Dual/Quad screen, Compound, LOGIQ View, Zoom, Depth, Scale and Baseline
- On-line or off-line protocol editor
- Image acquisition according to predefined protocol templates
- Various factory protocol templates
- User configurable protocol templates

Stress Echo (optional)

Supported Protocol Examinations

- 2D pharmacological stress echo
- 2D bicycle stress echo
- 2D continuous capture stress echo (treadmill stress echo)
- Q-Stress protocols (acquire tissue velocity data in background for quantitative analysis)
- Cardiac resynchronization therapy programming protocols

Protocol Examinations May Include

- Wall motion scoring: Analysis by wall motion in individual myocardial segments
- Show reference: Show a reference image from baseline or previous level during acquisition
- Smart stress: Automatically set up various scanning parameters (for instance geometry, frequency, gain, etc.) according to same projection on previous level
- Scan mode settings: Scan mode may be specified for individual views in the protocol
- Preview of store: Show running loops as preview before storing to the examination

Continuous Capture

- Continuously acquire large amounts of 2D image data, and selection of projection views for analysis afterwards
- The entire continuous capture recording may be kept in memory while it is possible to store new images outside the protocol template, or the entire recording can be stored to file
- Selection of projection views on EchoPAC when the entire recording is stored to file

Wall Motion Scoring

- As part of the measurement and analysis package one can access a wall motion assessment module, providing analysis/scoring of individual myocardial segments
- For use with all stress modalitiese

Smart Standby (optional)

- In case of accidental shutdown or power failure, the system automatically saves data and the system turns into “Standby” mode
- When power is restored, the system automatically turns on instantly, maintaining the exact system state prior to shutdown

Safety Conformance

The Vivid T9 is:

- CE Marked to Council Directive 93/42/EEC on Medical Devices

Conforms to the following standards for safety:

- IEC 60601-1 Medical electrical equipment – Part 1: General requirements for safety
- IEC 60601-1-2 Medial electrical equipment – Part 1-2: General requirements for safety

- Collateral Standard: Electromagnetic compatibility – requirements and tests EMC Emissions Group 1 Class A device requirements as per CISPR 11
- IEC 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment
- ISO 10993-1 Biological evaluation of medical devices – Part 1: Evaluation and testing
- EN 62366 Medical devices – application of usability engineering to medical devices

Inputs and Outputs

- VGA output (1080P resolution)
- Composite color video output via an adapter
- S-Video output via an adapter
- Audio stereo output
- 100BASE-TX ethernet (RJ45)
- USB (3x in rear, 3 under keyboard)

Virus Protection

- To reduce virus vulnerability, Vivid T9 is configured with a minimal set of open ports and with all network services not actively used by the system closed down. This helps to reduce the risk of a virus attack on Vivid T9.
- GE is continuously judging the need for additional actions to reduce vulnerability of equipment; this includes vulnerability scanning of our products and evaluation of new security patches for the third-party technology used. Microsoft (and other) security patches that address serious issues with Vivid T9 will be made available to customers after GE verification of those patches.

Whitelisting

- Prevents non-listed applications from running

Transducers

3Sc-RS Phased Array Probe

- Probe presets: Cardiac, pediatric, abdominal, fetal, adult cephalic, LVO Contrast (optional)
- Biopsy guide: Multi-angle disposable with a reusable bracket

6S-RS Phased Array Probe

- Probe presets: Pediatric, fetal, neonatal cephalic, abdominal

12S-RS Phased Array Probe

- Probe presets: Pediatric, neonatal cephalic, abdomen

6Tc-RS TEE Probe

- Probe presets: Cardiac, LVO contrast (optional)

9T-RS TEE Probe

- Probe preset: Pediatric

9L-RS Linear Array Probe

- Probe presets: Peripheral vascular, abdomen, pediatrics, small organs, neonatal cephalic, musculoskeletal
- Biopsy guide: Multi-angle disposable with a reusable bracket

12L-RS Linear Array Probe

- Probe presets: Peripheral vascular, abdomen, pediatrics, small organs, neonatal cephalic, musculoskeletal
- Biopsy guide: Multi-angle disposable with a reusable bracket

L6-12-RS Linear Array Probe

- Probe presets: Peripheral vascular, abdomen, pediatrics, small organs, neonatal cephalic, musculoskeletal
- Biopsy guide: Multi-angle disposable with a reusable bracket

L8-18i-RS Linear Array Probe

- Probe presets: Peripheral vascular, small organs, intraoperative, musculoskeletal

4C-RS Curved Array Probe

- Probe presets: Abdomen, GYN, fetal/obstetrics, neonatal cephalic, pediatrics, urological
- Biopsy guide: Multi-angle disposable with a reusable bracket

C1-5-RS Curved Array Probe

- Probe presets: Abdomen, GYN, fetal/obstetrics, neonatal cephalic, pediatrics, urological
- Biopsy guide: Multi-angle disposable with a reusable bracket

8C-RS Curved Array Probe

- Probe presets: Abdomen, pediatrics, neonatal cephalic, peripheral vascular, cardiac
- Biopsy guide: Fixed-angle, disposable, or reusable bracket

E8Cs-RS Endo Curved Array Probe

- Probe presets: GYN, transvaginal, fetal/obstetrics, urological, transrectal
- Biopsy guide: Fixed-angle, disposable, or reusable bracket

E8C-RS Endo Micro Convex Probe

- Probe presets: Fetal echo, follicle, GYN, OB1, prostate
- Biopsy guide: Fixed-angle, disposable, or reusable bracket

P2D Pencil Probe

- Probe preset: Cardiac

PROBE	FREQUENCY RANGE	CATALOG #
3Sc-RS	1.3 – 4.0 MHz	H45041DL
6S-RS	2.0 – 7.0 MHz	H45021RP
12S-RS	4.5 – 12.0 MHz	H44901AB
6Tc-RS	3.0 – 8.0 MHz	H45551ZE
9T-RS	4.0 – 10.0 MHz	H45531YM
9L-RS	3.0 – 10.0 MHz	H40442LL
12L-RS	4.0 – 13.0 MHz	H40402LY
L6-12-RS	4.0 – 13.0 MHz	H48062AC
L8-18i-RS	4.5 – 18.0 MHz	H40462LF
4C-RS	1.5 – 5.0 MHz	H4000SR
C1-5-RS	1.5 – 5.0 MHz	H40462LA
8C-RS	3.5 – 10.0 MHz	H40402LS
E8Cs-RS	3.5 – 10.0 MHz	H48062AF
E8C-RS	3.5 – 11.0 MHz	H40402LN
P2D	1.9 – 2.1 MHz	H45551CA

Product may not be available in all countries and regions. Full product technical specification is available upon request. Contact a GE Healthcare Representative for more information. Please visit www.gehealthcare.com/promotional-locations.

Data subject to change.

About GE Healthcare

GE Healthcare is a leading provider of medical imaging, monitoring, biomanufacturing, and cell and gene therapy technologies. GE Healthcare enables precision health in diagnostics, therapeutics and monitoring through intelligent devices, data analytics, applications and services. With over 100 years of experience and leadership in the healthcare industry and more than 50,000 employees globally, GE Healthcare helps healthcare providers, researchers and life sciences companies in their mission to improve outcomes for patients around the world. Follow us on Facebook.com, LinkedIn.com, Twitter.com and The Pulse.com for latest news, or visit our website www.gehealthcare.com for more information.

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imagination at work