
1 1

Vivid q BT12 Cardiac system with
Respiration

Vivid q Ultra-portable High-End
Echocardiography System

Vivid* q is a miniaturized
ultra-portable high-performance
cardiovascular ultrasound system.
The system's performance is
distinguished by advanced image
quality, sensitivity, ultra-high frame
rates, and speed. The Vivid q delivers
premium-level portable
cardiovascular ultrasound features
through innovative performance,
advanced quantitative analysis tools
and matrix probe technology with
three dimensional electronic beam
focusing. The Vivid q features provide
information to help improve
diagnostic capabilities for Cardiac,
Vascular, Pediatric, Fetal, Abdominal,
and Perioperative applications.
Sophisticated measurement and
analysis tools and comprehensive
connectivity with a wireless network
option help improve productivity and
quality of care. A 15" high-quality
LCD monitor provides wide-angle
visibility with programmable
adjustments for excellent image
quality. A rechargeable battery and
an advanced power management
system provide approximately 1.0
hour of full scan operation when the
unit is unplugged from the AC mains
power source.

The Vivid q is based on GE's TruScan

Architecture common to all GE Ultrasound systems. It features a powerful PC platform (with high processing power, storage, graphics capabilities and Input/Output versatility), raw data/DICOM storage with specific post-processing capabilities, record archiving and management and on-board high capacity hard disk storage. The Vivid q incorporates a comparable software platform, user interface, reporting system and connectivity features as found in leadership systems.

The system offers several options aimed at enhancing image quality, facilitating rapid interpretation, and improving diagnostic confidence for all applications provided. Such features include live Anatomical M-Mode, multiple foci control, Automatic Tissue and Spectrum Optimization, Ultra definition Image optimization, Carotid ClearVessel, LOGIQView, Smart Depth, Tissue Characteristic Optimization, Wide Aperture, Compound Imaging, B-Flow, BFI and LVO Contrast.

Advanced analysis tools on the Vivid q include the easy to use and time saving AutoEF measurement, Smart Stress protocols, Tissue Velocity Imaging, Tissue Tracking, Tissue Synchronization Imaging and IMT for automatic measurement of Intima Media Thickness. Additionally the Vivid q features Automated Function Imaging (AFI), utilizing

speckle-tracking technology to provide information about the global LV function and regional contraction differences. A wide selection of transducers, including phased array, linear, curved-linear, pencil and TEE provide comprehensive testing capabilities for children and adults. Intra Cardiac Echo Imaging (ICE) catheters broaden the approach to interventional imaging. All transducers, except the 9T-RS pediatric TEE probe and the i12L-RS intraoperative probe, offer Harmonic Imaging and feature the ComfortScan design, including a small and ergonomic housing, a lightweight pliable cable, and a miniaturized snap-on RS connector, to help promote maximum comfort of the patient and operator.

A wide range of connectivity options helps improve productivity. These options include compatibility with the EchoPAC* review station, the Image Vault, DICOM** servers, and DICOM printers. Removable storage media options include DVD/CD, USB flash cards, and an MO disk.

The MPEGvue option allows clinicians to save patient records to a local storage device or to a remote shared volume in the compact high-quality MPEG4 format (in addition to AVI, JPEG, and BMP formats). The MPEGvue Player/browser can be installed on any Standard PC to view MPEG4-compressed images, measurements, or reports. The

"eMail" menu option allows users to send MPEG4 records as Microsoft Outlook email attachments to a remote destination, via an Internet connection.

The eVue option provides interactive remote monitoring of images acquired by the Vivid q from a PC networked to the system, via wired or wireless network communication.

The system is fully compatible with the Vivid line of Cardiovascular Ultrasound systems (Vivid E9, Vivid 7, Vivid S5, Vivid S6 and Vivid i), including the EchoPAC review station, which duplicates the raw-data analysis, report design and report generation capabilities of the console. In addition, the system offers seamless DICOM Standard compatibility, which enables network solutions for large- and small-scale operations alike.

System includes two days of On-site Applications Training. The On-site Applications Training must be completed within six (6) months after Product delivery, otherwise GE Healthcare's obligation to provide the training will expire without refund. Additional On-site Applications Training days are available for purchase. Customer workflow permitting and abiding by SDMS criteria, sonographer install CE's may be provided during install training.

Standard Configuration includes:

-
- Coded Harmonic Imaging
 - CTO / ATO / ASO
 - Tissue Characteristic Optimization (TCO)
 - Anatomical M-Mode (AMM)
 - Tissue Spectral Doppler
 - Dual Focus (Cardiac Applications)
 - Wide Aperture (Linear and Curved array Probes)***
 - Compound (Linear and 4C-RS Probes)***
 - Ultra Definition Speckle Reduction Imaging (SRI)
 - Ultra Definition Adaptive Reject
 - Coded Phase Inversion (CPI)
 - Read and Write Zoom
 - Carotid ClearVessel***
 - Integrated Patient Archive
 - Report gen. w / template editor
 - Battery Pack
 - Direct Connect to EP
 - DICOM Media
 - USB Export
 - ECG with Respiration
 - LOGIQView***
 - Virtual Convex***

The following options are available for purchase:

- Smart Stress (optional purchase)
- AutoEF (optional purchase)
- AFI (optional purchase)
- TVI & Tissue Tracking (optional purchase)
- TSI (optional purchase)

-
- Strain/SRI (optional purchase)
 - QA (optional purchase)
 - Smart Depth (optional purchase)
 - LVO Contrast (optional purchase)
 - IMT*** (optional purchase)
 - B-Flow / BFI*** (optional purchase)
 - TEE Probe Interface Module (optional purchase)
 - ICE probe interface module (optional purchase)
 - Ob/Gyn Application Module*** (optional purchase)
 - External Respiration Interface (optional purchase)
 - DVD/CD R/W Drive (optional purchase)
 - DICOM Network Connectivity (optional purchase)
 - MPEGVue (optional purchase)
 - eVue (optional purchase)
 - Virtual Printer (optional purchase)
 - WLAN Option (optional purchase)
 - CardioLab Support (optional purchase)
 - Carto Interface (optional purchase)

*Trademark of General Electric Company

**DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

***Only available with the Vascular Application option. Third party

trademarks are the property of their respective owners.

2 1

Vivid i/q BT12 USA Regional Language Kit

The Vivid i/q BT12 USA Regional Language Kit

3 1

Automated Function Imaging - AFI

Automated Function Imaging - AFI

* Parametric Imaging tool which gives quantitative data for global and segmental wall motion

* Allows complete assessment at a glance by combining 3 longitudinal views into one comprehensive bulls-eye view

* Integrated into M&A package with worksheet summary

* 2D-strain-based data moves into clinical practice

4 1

SI/SRI

Strain Imaging & Strain Rate Imaging for Vivid q BT11

Research tool, providing Strain Imaging and Strain-Rate Imaging modalities for tissue Doppler imaging data. Needs Q-Analysis (H450312B) to display calibrated Curves over the heartcycle.

5 1

Smart Depth

Smart Depth provides adaptive optimization of balance between penetration and resolution for any selected depth. The system changes interactively the transmit pattern and

frequency, as the user changes depth. This ensures the highest resolution when scanning at shallow depth, and optimal penetration when increasing depth. The user can focus more on the patient and less on the system

With Linear probes, this option affords higher frame rates at increased scan depth.

In color Mode, the system changes interactively transmit pattern and color frequency, as the user changes depth of color ROI. This will ensure highest resolution when scanning at shallow depth, while assuring optimal color sensitivity when placing the ROI at a larger depth.

6 1

Intima Media Thickness
measurement – IMT

The Intima Media Thickness (IMT)
measurement option offers

- * Automated measurement of IMT rather than the conventional way of measuring the IMT manually

- * Results representative of a region rather than a single point of a vessel wall

- * Reduction of examination time by providing a quick and easy procedure in measuring the IMT

7 1

LVO Contrast

LV Contrast 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.

8 1

B-Flow / BFI

B-Flow

- * B-Flow is a new digital imaging technique that provides real-time visualization of vascular hemodynamics by directly visualizing blood reflectors and presenting this information in a gray scale display

- * Use of GE-patented techniques to boost blood echoes, and to preferentially suppress non-moving tissue signals

- * B-Flow is available for most vascular and shared service applications

Blood Flow Imaging (BFI)

- * Combines color Doppler with gray scale speckle imaging

- * Allows better delineation of blood flow without bleeding into tissue or vessel wall

9 1

Tissue Velocity Imaging and Tissue Tracking – TVI and TT

Tissue Velocity Imaging - TVI

- * Myocardial Doppler imaging with color overlay on tissue image

- * Tissue Doppler data can be acquired in background during regular 2D imaging

- * Segmental wall motion analysis can be obtained with use of anatomical

M-mode from digital replay or image clipboard recall

- * Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information

- * Quantitative profiles (Q-Analysis) can be derived on data transferred to EPPC workstation

Tissue Tracking

- * 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

10 1

Tissue Synchronization Imaging - TSI

Tissue Synchronization Imaging – TSI

- * Imaging which gives information about synchronicity of myocardial motion

- * Delayed myocardial segments produce red overlay whereas segments moving in normal rhythm are green

- * Available in live scanning as well as an offline calculation derived from TVI data

- * Including velocity trace visualization

Requires TVI and Tissue Tracking to be installed.

11 1

QA

Q-Analysis option for quantification
of Tissue Doppler modalities

- Enables AMM, cAMM, Velocity Traces for TVI data in QA screen (postprocessing)
- Enables quantitative Analysis including Strain Rate and Strain Traces in combination with Strain Imaging
- Enable Event timing AVO, AVC, MVO, MVC

12 1

Smart Stress

Stress package with memory buffer offering pharmaceutical, treadmill and bicycle stress exam protocols with user-configurable templates and shuffle mode.

“Smart Stress” function with the ability to save over 17 imaging parameters from each imaging plane – these imaging parameters are recalled at each stress level, thereby requiring no system adjustments.

Reference loop display during acquisition for comparing resting images to each stress level (dual screen).

Advanced and flexible stress-echo examination capabilities.

Stress treadmill-exercise with more than 120 seconds of raw data continuous capture.

Possibility of extensive post-processing of images under review.

Wall motion scoring (bulls-eye and

segmental).

Template Editor to customize the number of stress levels, number of views, number of heart cycles and systolic or full-cycle capture.

13 1

AutoEF

AutoEF

Automated EF measurement tool based on the 2D-speckle tracking algorithm.

Calculation according to the Simpson algorithm.

Integrated into the M&A package with worksheet summary.

Easy to use and needs less time than conventional Simpson.

14 1

DICOM Network Connectivity

DICOM Network Connectivity provides DICOM output to a DICOM server and Dicom Media Interchange. Includes Verification AE, Image Export AE (network storage), Modality Worklist AE, Media Creator, Storage Commitment, Performed Procedure Step, and DICOM Print.

15 1

MPEGVue

MPEGvue allows export of MPEG4-compressed records with high quality and small file size, worksheets, and reports onto local storage media or a remote IP address networked to the system. The MPEGvue Player can be installed on any standard PC system. It enables flexible review and simple

measurements of high-quality images. The "Send Email" transparently sends patient records via resident Outlook Client to remote destination. Records are encrypted, zipped, and password-protected for security. Long attachments are automatically divided into smaller one sent with consecutive email messages. MPEGvue on the receiving end retrieves all incoming Outlook attachments with the "Get Email" option and recovers the original record for review.

16 1

eVue

eVue allows real-time transmission of MPEG4-compressed loops to a remote IP address during scanning, while saving raw data on the local hard disk. The viewer at the remote site can immediately view sent images with the MPEGvue Player. Same images can be accessed by other PCs on the same network.

17 1

Wireless Network USB Adapter

Allows connecting the scanner to a wireless network according to IEEE 802.11g or 802.11b (2.4GHz) Standard

18 1

Vivid q BT12 Vascular Application module

Vivid q BT12 Vascular Application module

19 1

TEE Probe Interface Module

		TEE Probe Interface Module for the 6T and 9T Multiplane Transesophageal Phased Array Transducers.
20	1	<p>M4S-RS Matrix Phased Array Transducer</p> <p>Wide-band multi-frequency transducer with bandwidth between 1.5 and 3.6 MHz. Applications include: cardiac, pediatric heart, coronary, fetal heart, adult cephalic, abdominal and renal.</p>
21	2	<p>9T-RS Multiplane Transesophageal Phased Array Transducer</p> <p>Wide-band multi-frequency Phased Array transducer with bandwidth between 4.0 and 10.0 MHz. It supports adult and pediatric transesophageal application. The distal probe tip with a dimension of 10.7 x 7.5 mm and a length of 37.5 mm allows excellent imaging for pediatric diagnose and intervention control. The handle is watertight and the scan plane movement is motorized. Requires H45021D TEE Probe Interface Module.</p>
22	1	<p>9L-RS Linear Array Transducer</p> <p>Wide band multi-frequency transducer with bandwidth between 3.0 and 10.0 MHz. Applications include: Vascular, breast, thyroid, musculoskeletal and other small parts.</p>
23	1	i12L-RS Intraoperative Transducer

		Broad spectrum intraoperative linear transducer with bandwidth between 6.0 and 10.0 MHz. Preferred applications include small parts, peripheral vascular and musculoskeletal.
24	1	<p>P2D Transducer</p> <p>2 MHz Non-Imaging Single CW Doppler Transducer. Preferred Applications: Cardiac.</p>
25	1	<p>DVD option for Vi_q</p> <p>DVD option for Vi_q</p>
26	1	<p>ICEcord-RS</p> <p>SwiftLink™ ICE probe catheter connector, designed exclusively for use with the AcuNav 10F ICE probe on the Vivid i/q. Requires H45021YR ICE probe interface module.</p>
27	1	<p>CardioLab Support</p> <p>This option allows interfacing the system to the CardioLab™ (an Electro physiology Monitoring System), and to the Mac-Lab™ (a Hemodynamic Monitoring System, built on a common platform with CardioLab™). It provides:</p> <ul style="list-style-type: none"> - Real-time display of the ultrasound scanning on the CardioLab or Mac-Lab system - Images and loops from the Vivid i/q system can be stored on the CardioLab or Mac-Lab system for further review. - Vivid i/q system can be operated via

a remote control keyboard located in a different room

Though the primary use case will be ICE, the Vivid i/q system may scan with any available probe while interfaced to the CardioLab or Mac-Lab systems.

28 1

Carto™ XP/Carto™ 3 EP Interface with Isolated VGA Splitter

The system can interface with the Carto™ XP and the Carto™ 3 EP navigation system and the SoundStar™ 3D ultrasound Catheter, manufactured by Biosense Webster*.

- The interface will allow the Vivid i or Vivid q system to send images to the Carto™ XP and the Carto™ 3 EP system over a VGA video cable

- The Vivid i and Vivid q is able to send ultrasound scaling parameters to the Carto™ XP and the Carto™ 3 EP system via a peer-to-peer LAN connection

- The Isolated VGA Splitter is included in this option. With the Isolated VGA Splitter in place, the Vivid i and Vivid q can be interfaced in parallel to the Carto™ XP or the Carto™ 3 and to the CardioLab™ or ComboLab™, allowing the operator to use both systems during the same patient's examination.

*Registered, U.S. Patent and Trademark Office

29 1

Isolated VGA Splitter

Via this splitter Vivid i and Vivid q can

be interfaced in parallel to the Carto™ XP or the Carto™ 3 and to the CardioLab™ or ComboLab™, allowing the operator to use both systems during the same patient's examination.

In addition this splitter allows generally save Video connections, independent of the electrical safety of the connected video system.

30 1

ICE Probe Interface Module

ICE Probe interface module required to use the AcuNav 10F ICE probe with the Vivid i/q

31 1

Specialty Probes User Manual

Specialty probes user manual (hardcopy)

32 1

ICE User Manual

ICE User Manual - English