uSmart® 3300

Introducing...

Terason's Newly-Designed
Portable Ultrasound System

The New Look of Ultrasound.

terason®

uSmart® 3300 Ultrasound System Specifications

Overview

Clinical Applications

- Abdominal
- Anesthesia/Nerve Block
- Arterial
- Breast
- Cardiac
- Carotid
- Critical Care
- FAST-Emergency Medicine
- MSK
- Neonatal (Hip)
- OB/GYN
- Thyroid
- Transcranial Doppler
- Vascular Access
- Venous

Imaging Modes

- 2D (B-Mode)
- M-Mode
- Anatomical M-Mode
- Color Doppler
- Pulsed Wave Doppler
- Power Doppler
- Directional Power Doppler
- Tissue Doppler
- Continuous Wave Doppler
- Harmonic Imaging

Imaging Features

- Smart Resolution Imaging
- Enhanced Needle Visualization (ENV)
- TeraVision™ II
- OmniBeam™
- Dynamic Depth Resolution (DDR™)
- TeraZoom™
- Trapezoid
- Triplex/Duplex (Simultaneous/Non-Simultaneous)
- Split Screen
- Full Screen
- Auto Optimization
- 2D Beam Steering
- Color/2D
- Application-Specific Presets
- TeraScape™

Ergonomics

- Smart Console Design
- Optical Trackball (Full-Size)
- Ergonomic Key Positioning
- Reliable and Responsive High-Quality Controls
- Backlit High-Resolution LCD
- Backlit Keyboard
- Portable – Comfort Handle
- Intuitive User-Interface
- Tilt Feet

Workflow

- Color Change Controls for Active Mode
- Prospective and Retrospective Capture
- Cine Loop Trim Capability
- Advanced Measurement Tools
- Configurable Report Builder
- Store, Print, Media Export
- JPEG/AVI/BMP/PDF Media Export
- DICOM 3.0

Revolutionary Architecture & Performance

System Configuration

- 1 TB Hybrid Hard Drive
- 802.11 b/g/n Wireless Network
- Processor: 2.5 GHz, Intel® Core™ i7
- 8G RAM DDR3 Onboard Memory
- 15" Backlit Polarized Anti-Glare LCD Display, Ultra-Wide Viewing Angle
- Removable Lithium Ion Battery
- Imaging Channels: 256
- Dynamic Range: 200 dB
- Video Output: 1024 x 768
- Built-in CD/DVD+RW Drive
- Built-in Camera
- Dual Speakers with Subwoofer
- 4 USB Ports
- Gb Ethernet Port
- 2 HDMI Ports
- DC input
- Headphone Jack
- Microphone Jack
- Kensington Security Slot
- ECG and Auxiliary Ports

Benchmarks

- Cold Boot-Up Time: < 35 Sec
- >1 Hour Battery Life
- Transducer Select Time (Typical): < 2 Sec
- Data Access Time: << 1 Sec

Open Windows® Architecture

- Windows® 7 Pro Operating System
- uConnect™ Remote Capabilities
- Send Images Remotely
- Software Updates
- Remote Training
- Full PC Capabilities
- Installation of Third-Party Applications
- Windows® NTFS EFS Encryption Compatible

Physical System Specifications

- System Height: 3.5" / 89 mm
- System Depth: 15.6" / 396 mm
- System Width: 15.3" / 389 mm
- Weight: 14.8 lbs / 6.7 kg

Cart Design and Ergonomics

- Sleek Body Style
- Weight: 85 lbs / 38.5 kg
- Mobile Design
- Four-Wheel Steering for Excellent Mobility
- 4-Wheel Braking
- 3 Transducer Holders
- Removable and Washable Gel Holder
- On-Cart Storage Basket
- Transducer Connector Holders
- Cable Management
- OEM Printer Bay
- 3 Probe Multi-Connector

Advanced User Interface Features

- uConnect™ Remote Capability
- Color Gain Range: 0 – 100
- Auto-Optimization Control
- Post-Acquisition Processing
- Interactive Body Markers
- Adjustable Color Doppler Box Sizes
- Custom Configurations in Setup Menu
- Soft Key Image Control Panel

Transducers & Clinical Applications

15L4 Linear Array

- 15L4 Linear Array
- Applications: Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Thyroid, Vascular, Venous
- Number of Elements: 128
- Imaging Frequency: 4 MHz – 15 MHz

uSmart 3300 Ultrasound System Specifications

- Transducer Footprint: 52.2 mm x 17 mm
- Aperture: 38 mm
- Ultra-Lightweight: .3 kg
- Comfort-Hold Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection
- Biopsy Guide Available
- Smart Mark™

5C2 Curved Array

- Applications: Abdominal, FAST, Fetal Cardiac, MSK, OB/GYN, Renal, Thyroid, Visceral
- Number of Elements: 128
- Imaging Frequency: 2 MHz – 5 MHz
- Transducer Footprint : 76 mm x 27 mm
- Field of View: 60°
- Ultra-Lightweight: .34 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection
- Biopsy Guide Available

4V2 Phased Array

- Applications: Cardiac, FAST, TCD
- Number of Elements: 64
- Imaging Frequency: 2 MHz – 4 MHz
- Transducer Footprint : 34 mm x 24.5 mm
- Field of View: 90°
- Ultra-Lightweight: .28 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

8EC4 Endocavity

- Applications: Prostate, OB/GYN
- Number of Elements: 128
- Imaging Frequency: 4 MHz – 8 MHz
- Transducer Footprint: 18.5 mm x 22 mm
- Field of View: 150°
- Ultra Lightweight: .34 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

16HL7 Hockey Stick

- Applications: MSK, Venous
- Number of Elements: 128
- Imaging Frequency: 7 MHz – 16 MHz
- Transducer Footprint: 38 mm x 10 mm
- Aperture: 26 mm
- Ultra-Lightweight: .22 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

12L5 Linear Array

- Applications: Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Thyroid, Vascular, Venous
- Number of Elements: 128
- Imaging Frequency: 5 MHz – 12 MHz
- Transducer Footprint: 52.2 mm x 18.7 mm
- Aperture: 38 mm
- Ultra-Lightweight: .3 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

8L2 Linear Array

- Applications: Arterial, Carotid, Venous
- Number of Elements: 128
- Imaging Frequency: 2 MHz – 8 MHz
- Transducer Footprint: 52.2 mm x 17 mm
- Aperture: 38 mm
- Ultra-Lightweight: .3 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

8V3 Phased Array

- Applications: Pediatric Cardiac, TCD
- Number of Elements: 96
- Imaging Frequency: 3 MHz – 9 MHz – Transducer Footprint: 34 mm x 24.5 mm
- Field of View: 75°
- Ultra-Lightweight: .25 kg
- Ergonomic Handle
- 2.1 Meter Cable
- Small Lightweight Connector for One-Handed Smart Connection

PDOF

(Not for Sale in the US, EMEA)

- Application: Cardiac
- Number of Elements: 2 (1 Transmit and 1 Receive)
- Imaging Frequency: 2 MHz
- Transducer Footprint: 16 mm

Clinical Applications Packages & User Presets

User Customizable Presets

- >20 User-Customized Presets can be Created per Clinical Application
- New Presets can be Created Based on Any Existing Factory Optimized Preset
- User Presets can be Added or Deleted
- New User Presets can be Associated with Any Clinical Application, Annotation, Body Marker and Labeled Measurement Set

Imaging Modes & Processing Options

Advanced Imaging Optimization Controls

- OmniBeam™ Image Enhancement
- TeraVision™ Image Optimization
- ENV (Enhanced Needle Visualization)
- Frame Rate (Max.): 150 FPS
- Dynamic Range: 200 dB in 1 dB steps
- Line Density (Max.): 10 lines / mm
- Persistence: 7 Levels
- B-Mode Display Parameters (Preset Dependent):

  Maximum Depth:
  - 15L4 = 12 cm
  - 5C2 = 30 cm
  - 4V2 = 30 cm
  - 12L5 = 12 cm
  - 8L2 = 15 cm
  - 8V3 = 20 cm
  - 16HL7 = 7 cm
  - 8EC4 = 14 cm
- Multiple Focal Zones: Up to 4
- Focal Positions: Up to 12
- Gray Maps: 12
- Internal TGC
- Read/Write Zoom

Color Display Parameters

- Transmit Frequencies: Selectable from 2 MHz – 8 MHz
- Color Wall Filters: Adjustable
- Color Maps: 8
- Color Persistence: Adjustable
- Color/B-Mode Priority Levels: 0 – 100%
- Wall-Filter: 0 – 1200 Hz
- Color Zoom
- Color Invert
- Hide/Show Color Display

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- Color Side-by-Side
- Focal Zone: Auto Set to Color Box, Independent of 2D Focal Zone
- Focal Positions: Up to 12
- Color Steering:
  - Steering Angle: -20° – 20° in Variable Increments
  - Auto-Color Invert with Color Box Steering in Color Doppler

Pulsed Wave Doppler Imaging Display Parameters

- Transmit Frequencies: Selectable from 2 MHz – 8 MHz
- FFT Processing: Up to 8k Points
- Highest Sweep Speed: 100 mm/s
- PW Sweep Speeds: 3 levels (Low, Medium, High)
- Filters: 50 MHz– 1200 Hz
- PRF Range: 200 Hz – 22000 Hz
- Quick Auto Angle Steering: -60°/0°/60°
- Fine Angle Correction: -90° – 90° in 1° steps
- Sample Volume Size: 0.5 mm – 2 cm

PW Display Options

- 5 Display Formats
- Spectral Invert

PW Doppler Spectral AutoTrace

- Mean Trace Display
- Velocity Measurement Points Display
- Configurable Automated Measurements Display (PSV, EDV, RI, PI, etc.)

Full Suite of Measurements Including

- Peak Systolic Velocity
- End Diastolic Velocity
- Resistive Index
- Systolic/Diastolic Ratio
- Time Average Peak Velocity
- Acceleration Time
- Pressure Gradient
- Volume Flow

Dual Imaging

- Full Featured Dual Imaging Mode with Independent Controls and Measures in Side-by-Side and Top/Bottom Planes:
  - Dual B-Mode
  - Dual B-Mode and Color

Image Review Post-Processing

- Measurements
- Annotations
- Body Markers
- Cine Clip Capture and Review
- B-Mode: 1500 Frames
- CD/PD: 400 Frames

Cine Clip Capture Features

- Clip Capture:
  - Choice of 1 – 10 Sec. (Prospective and Retrospective) Conventional Modes
  - Frame-by-Frame Image Review of Clips While Frozen
- Trackball Play, Fast-Forward Play and Frame Reverse
- Trim Frames from Beginning or End of Prospective or Retrospective Clips
- PW: Gain, Dynamic Range, Sweep Speed, Display Format, PW Map, Angle Correct, Baseline, Invert, Range, Persistence Correction, Color Gain, B-Mode Gain, Play Spectral Data, Add/Remove/Adjust, TeraVision™

Annotation and Body Markers

Annotations

- Full Annotations Packages Optimized for the Following Application Presets:
  - Breast, Cardiac, OB/GYN, TCD, Thyroid, Abdominal, MSK, Venous, Vascular (Carotid, Upper and Lower Extremity)
  - Fully User-Customizable Text and Text Replacement Lists per Preset
  - Default Settings are Optimized for the Most Commonly Used Annotations
  - Customized Home Cursor Position per Display Format
  - Text Replacement and Text Replacement Groups
  - Title Text and Free Text Options Available
  - Intuitive On-Screen Text Editing
  - Freely Reposition Annotations
  - Easily Insert Words into Existing Annotations
  - Four Programmable Areas for User Ease-of-Use (Laterality, Anatomy, Orientation, Location)

Body Markers

- Full Pictographic Body Markers Packages Optimized for the Following Application Presets:
  - Breast, Cardiac, OB/GYN, TCD, Thyroid, Abdominal, MSK, Venous, Vascular (Carotid, Upper and Lower Extremity)
  - Rapidly Depict and Change Transducer Orientation Directly on the Body Marker Using the Controls
  - End-User Fully Customizable Body Marker Packages per Imaging Preset

On-Screen Biopsy Guidelines

- On-Screen Biopsy Guidelines for the 15L4, 12L5, 8L2, 8EC4 and 5C2
- Biopsy Mode Disables Auto Freeze to Enhance Workflow
- Guidelines Correspond to Appropriate CIVCO and Protek Biopsy Kits

Measurements

- Available in Frozen, Dual and Clip Images
- > 20 Unique Cursors per Image
- Unique Measurement Features:
  - Measurements can be Made Across Dual Images at the Same Scaling
  - 2D and PW Measurements Performed on the Same Image
- Basic Measurements:
  - Distance (mm or cm)
  - Ellipse (Major Axis, Minor Axis, Area, Perimeter)
  - Trace (Area, Perimeter)
  - Generic Velocity (Vel), Peak Velocity (PSV), End Velocity (EDV), Minimum Diastolic Velocity (MDV)
  - Time Average Peak Velocity (TAPV), Time Average Mean Velocity (TAMV)
  - Doppler Trace for Time and Slope
  - Doppler Time
- Advanced Measurements:
  - Volume Flow (Diameter and TAMV)
  - ICA/CCA Ratio for Carotid Flow
  - Pediatric Hip Tools (Hip Angle and d:D Ratio)
- Label then Measure Capability:
  - Measurements can be Launched Directly from a Label
  - Clearly Identify Common Measurements on Screen and in the Report
  - Common Labels Available for all Clinical Applications
  - Bi-Lateral Measurement Support for Applications (e.g. Vascular) Requiring Paired Measures

uSmart 3300 Ultrasound System Specifications

Study Review

- Quick Study Review:
  - Image Thumbnails on Main Display Allow Quick Review
  - Preview, Open or Delete Images Instantly
  - Print, Export or Email Individual Images
- Full Study Review:
  - Selectable Study List
  - Display Study Images in 1, 2, 4 and Random Image Formats
  - Replay Cine-Clips in Real-Time
  - Thumbnail View
  - Print, Export or Email Multiple Images, Whole Study or Randomly Selected
  - Export Images/Clips Directly to CD/DVD, USB or Network in JPEG, AVI, BMP or DICOM Format

Worksheets

- Clinical Reporting:
  - Anatomical Images with Associated Lateral Measurements
  - Patient Information Automatically Populated from Study Data
  - Measurements Automatically Populated via Labeled Measurements Workflow
  - Large, Easy-to-Read Design
  - Printable on Windows® 7 Compatible Printer (Off-the-Shelf)
- Configurable Reporting:
  - Upload Hospital Logo for Report Header
  - Integrated Patient History from Patient Data Entry Screens
  - Easily Insert Images into Report
  - Free-Form Text Areas for Exam Comments and Conclusions
  - Report Preview
  - Export Reports Directly to CD/DVD, USB and Networks as a Portable Document Format (PDF) File or to DICOM Format

DICOM and Connectivity

- 10/100/1000 BaseT Ethernet Compliant Connectivity
- 802.11 b/g/n Wireless Network
- TCP/IP
- User Defined DICOM Server List:
  - Create, Edit and Delete Named Servers
  - Configure AE Title, IP Address or Computer Name, Port, Timeout, Retry Interval, Retries and Packet Size
  - Local Host Configuration
  - DICOM Verification Service
  - DICOM Job Management
- DICOM Storage:
  - Allows Connectivity to PACS
  - Allows "End-of-Exam" Transfer of Study Data
  - Batch Send Multiple Studies
  - Send Study Data to Multiple PACS Simultaneously
  - Queue Studies for Background Transfer
  - Queue Studies When Off-Line During Portable Exams for Automatic Transfer When Connected
- DICOM Modality Worklist (MWL):
  - Auto-Population of Patient Data Entry Screen from Hospital HIS/RIS Server
  - Sort or Filter Worklist According to Patient Information (Name, ID, Date/Time, etc.)
  - Automatic MWL Query Options
  - Manual MWL Query Options
  - Use MWL Off-Line During Portable Exams
- DICOM Media Storage:
  - Export Multiple Studies in DICOM Format to USB, CD/DVD or Network Drives
  - DICOM Conformance Statement Available Upon Request

Patient Privacy Features

- Export Images with or without Patient Sensitive Identification

System Configurations

- Personalized Institution Header with Customer Logo for Reports
- Configurable Institution, Referring Physician, Interpreting Physician and Operator Lists
- Selectable Date and Time Formats
- Metric and English Patient Unit Configuration
- Adjustable System Auto-Freeze Time (1-1000 Minutes)
- Power and Battery Level Indicator
- System Free Disk Space Indicator
- System Clock
- Network Status Indicator
- DICOM Connectivity Indicator
- Default Patient Name and ID
- Print Setup and Layout Configuration
- Auto-Delete of Exported Studies Options
- Needle Guide Target Indicator and Calibration
- Backup and Restore of User Settings

Preset Specific Configurations

- Image Scaling Options
- Split-Screen Options
- Acoustic Display Options:
  - MI Display
  - TIS Display Selection
  - TIB Display Selection
  - TIC Display Selection
- Prospective or Retrospective Acquisition
- Transducer Center Marker Options
- Horizontal Ruler Option
- Independent M-Mode and Doppler Format Selections
- Measurement Result Display Location
- Measurement Caliper Size
- Automatic Measurement Options
- Measurement Result Display Location
- Simultaneous and Non-Simultaneous Spectral Doppler Update Modes
- Adjustable Auto-Zoom of 2D Images in Spectral Doppler
- Default Correction Angle
- Auto-Steer Correction Angle
- Markers or Measurements on Freeze
- Stored Image Frame Rate Limit
- Configurable Annotation Libraries
- Configurable Body Marker Libraries
- Configurable Clinical Presets
- Configurable Measurement Packages

Data Management

- Hard Disk Capacity: 1 TB Hybrid Hard Drive
- Extensive Image Storage Capabilities
- Automatic Hard Disk Maintenance-Programmable Options

Data Export

- DICOM and PC Format Exports to USB Devices, CD/DVD or Network Locations
- EZ Viewer™ Program to Read Studies on Any Computer
- DICOM Connectivity Association and Setups

uSmart 3300 Ultrasound System Specifications

- Baseline JPEG, Run Length Encoded (RLE) and Uncompressed DICOM Transfer Syntaxes
- Independent Image and Clip JPEG Quality Factor Selections
- Optional Burn-In of Measurement and Annotation Overlays
- DICOM Export to Multiple PACS or DICOM Servers
- Export Individual Images and Reports
- JPEG, BMP, AVI, HTML and PDF Export Formats
- PC Export to Network/EMR
- Organized Directory Structure to Quickly Find Exported Studies

Peripherals, Ports and Printers

- Thermal Image Printers Supported:
  - Sony Black & White Model UP-897
- External Plain-Paper Image/Report Laser Printers Supported:
  - Any Compatible with Windows® 7
- Off-the-Shelf Printers Supported:
  - 1 Ethernet Port
  - 4 USB Ports
  - 2 HDMI Ports

Footswitch

- Two-Function Footswitch
  - Easily Connects to USB Port
  - Programmable from a Set of Frequently Used Operations
- Three-Function Footswitch
  - Easily Connects to USB Port
  - Programmable from a Set of Frequently Used Operations

Accessories

- Transducer Holders and Connector Holder (On-Cart)
  - Facilitates On-Cart Storage of Additional Transducers
  - Roller Bag (Optional)
  - Multi-Probe Connector Kit

Language Support

- User Controls Supported in English
- Supports Foreign Language Data Entry
- On-Screen Smart Guide™ Available in English

Remote Service Capabilities

- uConnect™ On-Line Support and Training
- Easy Software Updates
- Execute Scripts
- Capable of Retrieving and Analyzing Log Files and Backing Up System Configurations

Electrical/Environmental Specifications

- Universal Voltage Power Supply
- Power Supply Input Rating:
  - 100V – 240V AC, 47 – 63 Hz
  - 1.4A Max at 100V AC
  - 0.6A Max at 240V AC
- System Power Consumption:
  - 80 Watt Typical Scanning and Battery Charging
  - 65 Watt Typical Scanning and Battery Charging
  - 45 Watt Not Scanning and Battery Fully Charged
- Temperature Range:
  - Operating: 10°C – 35°C (50°F – 95°F)
  - Storage: -24°C – 45°C (-13°F – 113°F)
- Humidity Range:
  - Operating: 20% RH – 80% RH
  - Storage: 15% RH – 90% RH
- Pressure Range:
  - Operating: 472.5 mmHg – 759.8 mmHg

Standards Compliance

- ISO 13485 Certified
- uSmart 3300 is a Medical Device in Class II per the FDA and European Medical Directive 93/42/EEC
- uSmart 3300 is Compliant with the Following Safety Standards for:
  - UL 60601-1
  - CAN/CSA-C22.2 No. 601.1-M90
  - IEC/EN 60601-1, 60601-1-2, 60601-1-6
  - ISO 10993-1
  - ISO 14971
  - NEMA UD 2, UD 3
  - IEC 60601-2-37
  - IEC 62366
  - IEC 14971

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