

TE7 Touch Enabled Ultrasound System

Performance Specifications

System Overview

Applications

- Emergency
- Nerve
- Musculoskeletal
- Critical Care
- Abdomen
- Cardiology
- Obstetrics
- Gynecology
- Urology
- Small Parts
- Vascular
- Others

Transducer types

- Curved array transducers
- Linear array transducers
- Phased array transducers

Imaging modes

- B-Mode
- THI and PSH™ (Phase shift harmonic imaging)
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulse Wave Doppler
- Continuous Wave Doppler
- Left Ventricular Opacification

Standard features

- B-Mode
- THI and PSH™
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulse Wave Doppler
- iBeam™ (Spatial compound imaging)
- iClear™ (Speckle suppression imaging)
- iTouch™ (Auto image optimization)
- Smart Track (Real time color flow tracking and optimization)
- Zoom/iZoom (Full screen view)
- FCl (Frequency compounding imaging)
- B steer
- ExFOV (Extended field of view)
- Post Processing
- Echo Boost™
- 3 Embedded transducer ports
- 120GB SSD
- Built-in wireless adapter
- Built-in battery
- 4 USB 3.0 ports
- Touch gestures
- iStorage

Optional features

- Continuous Wave Doppler
- Left Ventricular Opacification (LVO)
- iNeedle™ (Needle Visualization Enhancement)
- DICOM

- Cart
- Table stand
- Wall mount

Language support

- Software: English, Spanish, French
- User manual: English

User Interface

System boot-up

- Boot-up from complete shut-down in less than 25 sec
- Shut-down in less than 15 sec
- Restore from standby mode in approximately 3 sec

Comments

- Supports text input and arrow
- Supports freehand marking on touch screen
- Covers various applications
- User customizable

Body mark

- 144 bodymarks for versatile applications

Exam mode presets

- 29 system exam modes
- Unlimited number for user definition

Screen information*

- Patient information ID, last name, first name, middle initial, gender, age
- Hospital name
- Acoustic power
- Mechanical index
- Tissue thermal index
- Transducer model
- Operator
- Focus position
- Imaging parameters

*Not all items are listed in this section. For detailed information please refer to the User Manual.

Imaging Parameters

Overview

- Echo-enriched beamforming
- Up to 55296 channels
- Up to 8-beamforming

B-mode

- Display formats
- iClear™
- iBeam™
- iTouch™
- FCl (Frequency compounding imaging)
- Echo Boost™
- Image quality
- B steer: available on linear transducers
- ExFOV: available on convex, linear, and volume transducers

- Depth
- Max. frame rate
- Acoustic output power
- TGC



Dynamic range

- Gain
- Focus number
- Focus position
- FOV
- Line density
- Persistence
- Horizontal scale
- L/R flip and U/D flip
- Rotation
- TSI
- Gray map
- Tint map

THI and PSH™

- Available on all types of transducers
- Patented PSH™ technology obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic
- iClear™ available
- Image quality

M-mode

- Display formats
- Acoustic output power
- Dynamic range
- Gain
- M sweep speeds
- M soften
- Tint maps
- Gray Map
- Edge enhance

Color Doppler Imaging

- Steer
- Image quality
- Maximum frame rate
- Acoustic output power
- Gain
- ROI size/position
- Scale
- Baseline
- Wall filter
- PRF
- Packet size

Performance Specifications

Color Doppler Imaging (Continued)

Flow state
Smooth
B/C align
Priority
Color map
Invert
Persistence
Line density
Smart track

Power Doppler Imaging

Supports directional power doppler
Image quality
Acoustic output power
Dynamic range
Gain
ROI size/position
Scale
Wall filter
PRF
Packet size
Flow state
Smooth
B/C align
Priority
Power map
Directional power map
Persistence
Line density

PW/CW-Mode (CW mode optional)

Display formats: V2:3, V3:2, V3:1,
FULL (V: vertical)

Image quality
Sample volume size
SV position
PW scale
CW scale
Baseline
PW steer
Volume
PW PRF
CW PRF
Gain
Dynamic range
Sweep speed
Wall filter
Invert
Auto invert
Angle correction
Quick angle
Gray map
Tint map
Time/frequency resolution
Auto calc
Auto calc cycle

Trace area
Trace sensitivity
Trace smooth
Duplex/Triplex

LVO (optional)

Dedicated left ventricle contrast imaging tool
Only available with P4-2s transducer

iTouch™

Auto image optimization
B-mode: gain, TGC
Color: gain
Power: gain
PW: baseline, scale, PRF, WF
For L12-4s under vascular, EM Vas and carotid exam modes: iTouch also optimizes Color ROI and PW sampling line

Smart Track

Continuously tracks the flow and detects the best color box position and angle in real time scanning
Only for L12-4s under vascular, EM Vas and carotid exam modes

Zoom

Zoom: Pan zoom (read zoom)
iZoom: Expand the image to full screen

Quick Save

Create a new exam mode by quickly saving current image parameter settings

iNeedle (optional)

Needle visualization enhancement
Available with all linear transducers
Needle steer: -50, -40, -30, -20, 20, 30, 40, 50 degrees (also supports slight adjustment in 2° increments)

Cine Review and Post Processing

Cine review

Available in all modes
Review: Frame-by-frame manual
Cineloop review
Auto playback with variable speed
Maximum cine memory: Up to 32346 frames or 427s (M/PW)
Configuration: Retrospective and prospective storage length is pre-settable (Prospective: maximum time 480s; Retrospective: maximum time: 120s)

Post processing

B-mode
Dynamic range
Gray map
Tint map
iClear
L/R flip and U/D flip

Rotation
H scale
Echo boost™

M-mode

Speed
Dynamic range
Gray map
Tint map
Edge enhance

Color

Baseline
Smooth
Color map
Priority
Invert

Power

Smooth
Dynamic range
Color map
Priority
Invert

PW

Baseline
Volume
Angle
Speed
Dynamic range
Gray map
Tint map
Invert
WF
Quick angle
Auto calculate
T/F res
Auto calc cycle
Auto calc parameter
Trace sensitivity
Trace smooth
Trace area

CW

Baseline
Audio
Angle
Quick angle
Speed
Dynamic range
Gray map
Tint
Tint map
Invert
WF
T/F res
Angle

Performance Specifications

Measurement/Analysis and Report*

Basic measurements

Depth	
Distance	
Angle	
Area:	ellipse, trace
Volume:	3-distance
Length ratio	
Area ratio	
Time	
Slope	
Heart rate	
Velocity	
D Trace	
PS/ED	
Automatic Doppler spectrum analysis	
Heart cycle:	pre-settable (1, 2, 3, 4, 5)
Automatic real-time and retrospective tracing	
User configurable display of items	
Supports PI, RI, TAMAX, TAMEAN, Volume flow calculations	
Appropriate factory setting according to applications	

Clinical measurement packages

Abdominal

Liver	
Common hepatic duct	
Iliac diameter	
Gall bladder:	length, height, wall thickness
Common bile duct	

Abdominal aorta

Prox diameter	
Mid suprarenal diameter	
Mid infrarenal diameter	
Distal diameter	
Mid suprarenal ABD aorta	
Mid infrarenal ABD aorta	
Bifurcate diameter	
Inferior vena cava	
Distal abdominal aorta	
Spleen:	length, width, height
Left/right kidney:	length, width, height, volume, cortical thickness
Bladder:	length, width, height, volume, micturition volume
Ureter diameter	
Pleural:	length, width, height, volume
Left/right UQ:	length, width, height, volume
Left/right iliac aneurysm:	length, width, height
Pelvis:	length, width, height, volume
Pericardial sac:	length, width, height, volume
Prox aorta aneurysm:	length, width, height
Mid suprarenal aorta aneurysm:	length, width, height
Mid infrarenal aorta aneurysm:	length, width, height
Distal aorta aneurysm:	length, width, height
Aorta bif aneurysm:	length, width, height

Gynecology

Cervix:	length, width, height
Uterus:	length, width, height, volume, uterus sum, endometrium thickness
UT-L/CX-L	
Ovary:	length, width, height, volume
Follicle:	length, width, height, average diameter, volume

Obstetrics

Early OB:	CRL, BPD, FL, HUM, HC, AC, amniotic fluid
2nd-3rd Trimester:	BPD, HC, OFD, FL, AC, AF, HUM, FTA, THD, Cervix L (Trace available), Ut A, Ovarian A, Ovarian V, FHR
Gestational age	
Estimated fetal weight	
Fetal biophysical profile	
Gestational age and fetal weight OB tables	
Weight percentile	

Cardiology

LV function (2D and M):	Teichholz
Mitral valve:	MV VTI, MR VTI, MV E/A
Aorta valve:	AV VTI, AR DecT
PAEDP	
RVSP	
CO (LVOT)	
Left atrium diam/aorta diameter	

Urology

Prostate:	length, width, height, volume PPSA, PSAD
Scrotal wall	
Left/right ureter diameter	
Renal:	length, width, height, volume
Bladder:	length, width, height, volume, micturition volume
Left/right kidney:	length, width, height, volume, cortical thickness
Left/right testis:	length, width, height, volume
Left/right testicular:	length, width, height, volume

Left/right epididymis:	length, width, height
Left/right epididymis:	aorta, vein
Left/right testicular:	aorta, vein

Vascular

Carotid:	CCA, ECA, ICA, Bulb, Vert A Stenosis D, Stenosis A, ICA/CCA
Lower extremity vein:	C.Iliac V, Ex.Iliac V, Pop V, TP Trunk V, Peroneal V, P.Tib V, A.Tib V
Femoral vein:	CFV, SFV, DFV
TCD (transcranial Doppler):	ACA, MCA, PCA, AComA, PComA, Vertebral A, Basilar A

Small Parts

Thyroid:	length, width, height, volume
Isthmus height	
Left/right thyroid cyst:	length, width, height, volume
Testis:	length, width, height, volume

Left/right testicular:	length, width, height, volume
Left/right epididymis:	length, width, height
Left/right epididymis:	aorta, vein
Left/right testicular:	aorta, vein
Breast mass:	length, width, height, nipple distance, skin distance

Report

Template:	Specific report by application
Editable value in report	
Images selectable	
Able to export as PDF/RTF file	

* Not all measurements are listed in this section. For more detailed information please refer to the User Manual

Exam storage

Capacity:	More than 74GB internal hard drive for patient data storage 120GB SSD ~354,313 single frames
Formats:	Single frames, cine 2D, color and Doppler

Exam management

iStation™ workstation dedicated for patient exam management	
Patient exam query/retrieve	
Supports review of current and past exam	
New exam, activate exam, end exam are available	
Supports measurements and calculations on archived exams and images	
Image export format:	BMP, JPG, TIFF, DCM, AVI
Supports backup:	USB devices (hide patient information) DVD-RW media (ASUS DVD)

Connectivity

Ethernet network connection

Cable connection	
Wireless connection:	built-in wireless adaptor

DICOM basic 3.0

Verify (SCU, SCP)	
Print	
Store	
Storage commitment	
Media exchange	

DICOM Worklist (HL7 supported)

DICOM Query/Retrieve

DICOM Modality Performed Procedure Step – MPPS

DICOM OB/GYN structure report

DICOM Cardiac structure report

DICOM Vascular structure report

DICOM Breast structure report

iStorage (included in UltraAssist)

Direct network storage tool between ultrasound system and personal computer

Performance Specifications

Physical Specifications

Dimension and weight

Depth:	97mm
Width:	295mm
Height:	380mm
Weight:	System approximately 6 kg (no peripherals or batteries)
Battery weight:	Approximately 1kg

Display

15-inch high resolution color LED monitor	
Resolution:	768 x 1024
Viewing angle:	85° left/right, 85° up/down
Digital on-screen display of brightness and contrast controls	
Frame rate:	60Hz

Cart (Optional)

System independent tilt of 50 degrees up, 5 degrees down

Dimension and weight (with system)

Height:	1266–1556mm
Width:	535mm
Depth:	620mm
Weight:	~50 kg

Wheels

Diameter:	125mm
Castors (4):	total lock and brake

Towelette holster

Gel holder

Printer holder

Storage bin

Table stand (Optional)

Tilt of 50 degrees up, 5 degrees down

Dimension and weight (with system)

Height:	248mm
Width:	196mm
Depth:	239mm
Weight:	~2.5 kg

Built-in Wireless adapter

Encryption:	WEP, WPA-PSK, WPA2-PSK
Max transfer speed:	300 Mbps
Protocols:	802.11b: 11, 5.5, 2, 1 Mbps; 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps; 802.11n: up to 300 Mbps

Built-in Battery

Replaceable and rechargeable lithium battery
Light indicator
Full battery lasts more than 22 hours in standby mode
Empty battery recharged to full in less than 4 hours
Continuous work time: more than 2 hours
Lithium-Ion Battery Pack 14.8V, 5800mAh (single battery)

Transducer ports and holders

Transducer ports:	3 active ports
Detachable probe holders:	4

Electrical power

Voltage:	100–240V~
Frequency:	50/60 Hz
Input current:	2.0A (115VAC)

Operating Environment

Ambient temperature:	0-40 °C
Relative humidity:	30%-85% (no condensation)
Atmospheric pressure:	700hPa-1060hPa

Storage & Transportation Environment

Ambient temperature:	-20–55 °C
Relative humidity:	20%–95% (no condensation)
Atmospheric pressure:	700hPa-1060hPa

Peripheral Devices and Accessories (Optional)

Black/white digital video printer

SONY UP-D897

Color digital printer

SONY UP-D25MD

Graph/text printer

HP Deskjet 1050 J410 series, HP Officejet 7000 wide format, HP Officejet Pro 8100

Wireless printer

HP Officejet Pro 8100

Footswitch

Wireless: WFREC-1(Receiver) + WFSW-2/WFSW-3 (Footswitch)

Barcode reader

Laser barcode scanner
Model: SYMBOL LS2208, DS6067

System Inputs and Outputs

HDMI:	1 port
ECG connector:	reserved
USB:	4 USB 3.0 ports
Ethernet:	1 port

Safety and Conformance

Quality standards

ISO 9001
ISO 13485

Design standards

EN 60601-1 and IEC 60601-1
EN 60601-1-2 and IEC 60601-1-2
EN 60601-1-6 and IEC 60601-1-6
EN 60601-2-37 and IEC60601-2-37
EN 62304 and IEC 62304
EN 62366 and IEC 62366
EN ISO 17664 and ISO 17664

NOTICE:

Not all features or specifications described in this document may be available in all transducers and/or modes.

Mindray reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation. Contact a Mindray representative for the most current information.