HITACHI
Inspire the Next

SPECIFICATIONS

for

Diagnostic Ultrasound System

prosound 6

MODEL: PROSOUND 6

Exceptional Image Quality beyond the Class

Backed by the proven technologies of the ProSound series which are reputed for excellent image quality, the ProSound 6 supports high-level echo examination setting the new standard in its class. The system is slim enough for use in a limited space. In addition, the ergonomic design and simple operation assist efficient examination.

- Full-digital System with Priority Given to Image Quality
  Inheriting the technologies used in the higher models of the ProSound series, Hitachi designed the ProSound 6 with top priority on image quality, with no compromise despite its compact size.

- Extended Pure Harmonic Detection (ExPHD)
  Reduces artifacts caused by multiple echoes and side lobes, taking advantage of the characteristic of second harmonics.

- AIP
  AIP clearly displays differences in tissues, reducing speckle noise. It offers images that are easier to diagnose without sacrificing original information.

- Wealth of Measuring and Report Functions

- High Resolution LCD Monitor
  The characteristics of the high-quality LCD monitor are adjusted to optimize diagnostic viewing of ultrasound images.

- Digital Image Management
  - Built-in compact flash memory
  - USB memory port
  - CD-R drive*
  * Option

- Diverse Specialty Probes
  Accepts Wideband Super High Density (W-SHD) probes as used in the higher models.

- Free Angular M-mode (FAM)
  Up to three M-mode cursors can be displayed at the same time and it is possible to move and rotate them to efficiently and accurately examine the heart function irrespective of the direction and position of the fetus.
  (FAM is available in freeze mode.)

- DICOM network communication
  The system is compatible with DICOM 3.0 standard. The patient data and image data can be transmitted to the file server in the network. Worklist management enables acquisition of the patient information and reservation information from the host computer.

Scanning Methods:

- Electronic convex sector
- Electronic linear
- Electronic phased array sector
- Mechanical radial (Option: SCU-PS6)

Operating Modes:

- B-mode
- M-mode

Image Display Modes:

- B
- Dual B
- M
- B and M

Beamformer

12-bit Digital Beam Former

Frame rate

Max. 889 frames/s*

* Depends on probe and various settings

B-mode:

- Display range: 3-24 cm (Probe dependent)
- Image Orientation
  Lateral inversion
  Vertical inversion
- Image rotation: 90 degrees step
- Scanning area:
  100% to 25%, continuously changeable
  Steering: Available
- Image zoom
  Write zoom (on real-time image):
  Max. 6 times (probe dependent)
  Read zoom (on frozen image):
  2 times
  Zoom area shift: Vertical and horizontal

Image processing

- Gain: 30 to 90 dB, continuously variable
- STC: 8 slide controls
- AGC—Suppression of brightness saturation: 16 steps
- Contrast: 16 steps
- Frame correlation: 16 steps
- Relief: 4 steps (Off, Low, MED, High)
- Smoothing: 8 steps
- IPS (Image Processing Select): 8 selections
  Items that can be set: Contrast, AGC, Relief, and Smoothing
- Post processing:
  Curves: 3 kinds + Linear
  Rejection: 64 levels (0 - 63)
- Scanning line density:
  3 selections (Low, MED, High)
- View gamma: 4 selections
- Frequency selections: Max. 4 (Probe dependent)
- AIP (Adaptive Image Processing)*
  * Option: SOP-PS6-2

M-mode:

- Display method: Moving bar
- Scroll speed: 1, 1.5, 2, 3, 4, 6, or 8 second/screen
- Erase function: Available (19 steps)
- FAM (Free Angular M-mode)*:
  Up to 3 M-mode cursors can be set at any position omni-directionally on a B-mode image. (Operates in freeze mode.)
  * Option: SOP-PS6-4

Image processing

- Gain: B-GAIN ±30 dB, continuously variable
- Contrast: 16 steps
- AGC—Suppression of brightness saturation: 16 steps
- FTC—Edge enhancement: ON/OFF
- Relief: 4 selections (Off, Low, MED, High)
- IPS (Image Processing Select): 8 selections
  Items that can be set: Contrast, AGC, Relief, FTC

Cine Memory:

- Cine Memory (B- mode):
  Search and Loop playback
  Max. 1,300 images or more (Probe dependent)
  ECG time phase display
- Scrolling Memory (M-mode)
  Max. 30 seconds or more (Probe dependent)

Note: The number of storable images depends on the probe, scanning angle, and other conditions.

Image Storage

- Built-in compact flash memory: Up to about 2600 images
- Image format: DICOM, BMP, JPEG
- Storable media: USB memory, CD-R*

* Disk drive is optional.

Physiological Signal Display*:

- Displayed information: ECG
- Display position: 16 steps changeable on both B-mode and M-mode images

* Option: PEU-6

DICOM network communication *

- Conforms to DICOM 3.0 (10Base-T/100Base-Tx)
- Conformity to DICOM service class:
  Ultrasound image storage SCU
  Storage Commitment SCU
  Storage media FSC/FSR
  Print management SCU
  Modality worklist management SCU
  Modality performed procedure step (MPPS) SCU
- IHE (Integrated Healthcare Enterprise)
  Compatible with SWF (Scheduled Work Flow)

For details, please refer to the DICOM Conformance Statement issued by Hitachi.

* Option: SOP-PS6-1

Preset Function

- Settable presets: 15 kinds
- Built-in presets: 17 kinds

Characters & Graphics display

- Character input area: Hospital name, patient ID, patient name, age, sex, and others
- Annotation function: Approx. 1000 words/dictionary x 6 dictionaries
  User registration of words: Possible
- Body mark display: 51 kinds
  Probe mark: 4 kinds
  Movement of displayed position: Possible
- Brachytherapy grid display: Available

Measurement & Analysis

■ Basic Measurements

On B-mode image

Distance
Area and Circumference by ellipse and trace
Angle
Volume (Volume, Volume Biplane, Slice Volume)
Stenotic rate (%STENO DIST, %STENO Area-T)
Ratio (Ratio Dist, Ratio Area-T, Ratio Ellipse)
Histogram (Hist.Box, Hist.Trace)
Hip joint angle

On M-mode image

Velocity
Time interval
Distance (amplitiude)
Heart rate
Stenotic rate (%STENO Length)

■ Obstetrical Measurements

Gestational age
Fetal weight
Amniotic index
Amniotic fluid pocket
Supports multiple gestations (twins and triplets)
Fetal heart rate
Graph function

■ Gynecological Measurements

Uterus
Cervix
Endometrium thickness
Ovary
Follicles

■ Cardiac Measurements

On B-mode image

Left ventricle function
B Pombo, B(Wall) Pombo,
B Teichholz, B(Wall) Teicholz,
B Gibson, B(Wall) Gibson,
Single Plane Ellipse, Biplane Ellipse,
Simpson, Modified Simpson
Bullet,
B LAX, B(Wall) LAX
B SAX
B APX

On M-mode image

Left ventricle function
M Pombo, M(Wall) Pombo,
M Teichholz, M(Wall) Teicholz,
M Gibson, M(Wall) Gibson,
Mitral Valve
Aortic Valve
Tricuspid Valve
Pulmonary Valve

■ Peripheral Vessels (carotid artery) Measurements

%Stenosis Area, %stenosis Distance

■ Urological Measurements

Prostate PSA volume
Bladder volume
Seminal vesicle
Testicular volume
Renal volume
Cortical thickness
Renal pelvis measurement

■ Report function

Obstetric report
Gynecological report
Cardiac function report
Urological report

■ Measurement on VCR playback image

Possible (Manual calibration)

Data Communication Function (ALK-3)*

It is possible to transmit patient data and OB, GYN, Cardiac function and Urological measurement data obtained by Hitachi diagnostic ultrasound system to a personal computer.

* Optional Isolation Unit SIU-6 is necessary.
Please prepare personal computer, appropriate software, and connection cable at your side. As for necessary conditions of such items, please contact your local distributor or Hitachioffice.

Optional Probes

Electronic convex sector probes

T.H.E.: Tissue Harmonic Echo

Application (description)	Model number	Ultrasound Frequencies (MHz)	Scanning angle (degrees)	Radius of curvature (mmR)	Optional accessories
General abdomen, OB/GYN (ExPHD)	UST-9123	2.5/3.75/5.0/6.0 T.H.E.: 2.5P/2.5S/ 3.0R/3.0H	60	60	Puncture adapter: MP-2473
General abdomen, OB/GYN (ExPHD)	UST-9127	2.5/3.75/5.0/6.0 T.H.E.: 1.9P/2.1S/ 2.5R/2.5H	60	60	
General abdomen, OB/GYN	UST-979-3.5	3.0/3.75/5.0/6.0	60	60	
General abdomen, OB/GYN	UST-990-5	3.75/5.0/6.0/7.5	60	60	
Abdominal	UST-9102U-3.5	3.0/3.75/5.0/6.0	90	20	Puncture adapter: MP-2414C
Abdomen (High resolution)	UST-9101-7.5	5.0/6.0/7.5/10.0	60	40	Puncture adapter: MP-2482
General abdomen, OB/GYN (ExPHD)	UST-9128	3.0/3.75/5.0/6.0 T.H.E.: 2.1P /2.1S / 2.1R/2.1H	120	14	Puncture adapter: MP-2474
Abdominal biopsy	UST-9113P-3.5	3.0/3.75/5.0/6.0	60	60	Puncture adapter is included as standard.
Endo-cavity, transvaginal	UST-9124	3.75/5.0/6.0/7.5 T.H.E.: 2.5P/2.5S/3.0R/3.0H	180	9	Puncture adapter: MP-2748-SET Probe cover: RB-945BP-S (sterilized)* RB-945BP-NS (nonsterilized)
Endo-cavity, transvaginal (with angled shaft)	UST-984-5	3.75/5.0/6.0/7.5	120	14	Puncture adapter: MP-2445-SET Probe cover: RB-945BP-S (sterilized)*[2] RB-945BP-NS (nonsterilized)
Endo-cavity, transvaginal (with straight shaft)	UST-9112-5	3.75/5.0/6.0/7.5	120	14	
Intraoperative (finger-grip probe)	UST-995-7.5	5.0/6.0/7.5/10.0	65	20	Waterproof connector cover: MP-2790
Intraoperative (finger-grip probe)	UST-MC11-8731	5.0/6.0/7.5/10.0	65	20	Waterproof connector cover: MP-2790
Intraoperative Small part, neonatal head	UST-987-7.5	5.0/6.0/7.5/10.0	65	20	Puncture adapter: MP-2458, MP-2783 Waterproof connector cover: MP-2790
Intraoperative (ExPHD)	UST-9133	3.0/3.75/5.0/6.0 T.H.E.: 1.9P/1.9S/ 2.1R/2.1H	82	20	Puncture adapter: MP-2781 MP-2781-5 MP-2781-25
Small part	UST-9136U	6.0/7.5/10.0/13.0	100	11	-
Endo-cavity transrectal (end-fire)	UST-676P	3.75/5.0/6.0/7.5	180	9	Probe cover: RB-665P-NS (Non-sterilized) RB-665P-S (Sterilized) (Includes puncture adapter MP-2452 as standard.)

* Sterilized probe cover cannot be sold in EU member countries.

Electronic linear probes

Application (description)	Model number	Ultrasound Frequencies (MHz)	Scanning width (mm)	Optional accessories
Abdomen (Biopsy)	UST-5045P-3.5	3.0/3.75/5.0/6.0	80	(Includes puncture adapter as standard.)
Small parts	UST-5710-7.5	5.0/6.0/7.5/10.0	60	Puncture adapter: MP-2456 Stand-off (water path): MP-2463*2
Intraoperative	UST-579T-7.5	5.0/6.0/7.5/10.0	60	Puncture adapter: MP-2448 Waterproof connector cover: MP-2790
Intraoperative	UST-5534T-7.5	5.0/6.0/7.5/10.0	42	—
Intraoperative (Laparoscopic probe*1)	UST-5536-7.5	5.0/6.0/7.5/10.0	33	Waterproof connector cover: MP-2790
Intraoperative	UST-534	7.5/10.0/12.0/13.0	5	—
Peripheral vessels (ExPHD)	UST-5413	6.0/7.5/10.0/13.0 T.H.E.: 5.0P/5.0S/ 5.0R/5.0H	38	Puncture adapter: ECM-16
Peripheral vessels	UST-5542	6.0/7.5/10.0/13.0	29	—
Peripheral vessels (ExPHD)	UST-568	6.0/7.5/10.0/13.0 T.H.E.: 5.0P/6.0S/ 7.5R/7.5H	50	—
Peripheral vessels	UST-5548	3.75/5.0/6.0/7.5 T.H.E.: 2.5P/2.5S/ 3.0R/3.0H	42	—

*1 Applicable inner diameter of trocar: 12 mm
Note: Trocars of some manufacturers and models may not be physically adaptable to this probe. Trocars of some manufacturers and models may damage the probe. For adaptability of the trocar, please contact your local distributor or Hitachi office.
*2 The MP-2463 is a must to use the MP-2456

Bi-plane trans-rectal probe

Application	Model number		Ultrasound Frequencies (MHz)	Scanning angle/width	Radius of curvature (mmR)	Optional accessories
Transrectal (Bi-plane: Convex sector x Linear))	UST-672-5/7.5	Convex	3.75/5.0/6.0/7.5	120 deg.	9	Puncture adapter: MP-2451 Probe cover: BL-664-S (sterilized)* BL-664-NS(Non-sterile)
		Linear	5.0/6.0/7.5/10.0	60 mm	-	
Transrectal (Bi-plane: Convex sector + Convex sector)	UST-677P	Convex + Convex	3.75/5.0/6.0/7.5	180 deg.	9	Probe cover: RB-665P-S (sterilized)*2 RB-665P-NS(Non-sterile) Puncture adapter is included as standard.

* Sterilized probe cover cannot be sold in EU member countries.

Electronic phased array sector probe

Application	Model number	Ultrasound Frequencies (MHz)	Scanning angle	Optional accessories
Cardiology (PHD)	UST-5299	2.1/2.5/3.0/3.75 T.H.E.:1.9P/1.9S/1.9R/1.9H	90 deg.	—
Cardiology	UST-5298	3.75/5.0/6.0/7.5	90 deg.	—

Mechanical radial probe*

***** Mechanical probe connection unit **SCU-PS6** is necessary to connect mechanical probe.

Application	Model	Ultrasound Frequencies (MHz)	Scanning angle (degrees)	Optional accessories
Transrectal	ASU-67	7.5/10.0	360	—

STANDARD COMPONENTS[*1]
Main Unit
Viewing Monitor (12.1-inch)
Accessories

OPTIONAL ITEMS

Ultrasound gel* (300g): GEL-SCAN-KA
Ultrasound gel* (5 lit.): GEL-SCAN-K

* Ultrasound gel cannot be sold in EU member countries.

Optional Software

DICOM Network Communication software
SOP-PS6-1

AIP software
SOP-PS6-2

FAM (Free Angular M-mode) function software
SOP-PS6-4

Optional Units/Parts

Physiological signal display unit
PEU-6

Serial I/O isolation unit
SIU-6

Mechanical probe connection unit
SCU-PS6

Transvaginal probe holder
MP-PH-ALPHA10-5

Extra probe holder set
MP-PH-PROSOUND6-2
(for a transrectal/transvaginal probe and an ordinary probe)

Probe cable hook:
SP-0902

- One-point footswitch: MP-2345B
- 3-point footswitch: MP-2614B

Optional Recording Devices

CD-R disk drive unit

VCR

VCR (Mitsubishi)
HS-MD3000U (NTSC)
HS-MD3000E (PAL)

Mounting blacket for VCR:
MP-FX-PROSOUND6-1

B/W printer

Worldwide (available in Japan)
UP-897MD/SYN (SONY)

NTSC:
UP-897MD (SONY)
P93W (Mitsubishi)

PAL:
UP-897CE (SONY)
P93E (Mitsubishi)

General Specifications

Active Probe Ports

- For electronic scanning probes: 2
- For radial scanning probe: 1*

* Option: SCU-PS6

Input/output signals

- Input: Black-and-white composite, 1 channel
- Output: Black-and-white composite, 2 channels

Viewing Monitor

- 12.1-inch diagonal LCD (VGA:640 X 480)
- Vertical shift
- Swivel and tilt

Operation panel switch

- Mechanical keys
- 2-color luminescence

Acoustic Power:

- 0 to 100%, continuously variable

Safety Regulation

- Complies with IEC 60601-1 Ed3.0: 2005 Class 1, Type BF

Environmental Requirements

In Operation

- Temperature: +10 to +40 degrees C
- Relative Humidity: 30 to 75% (non condensing)
- Atmospheric pressure: 700 to 1060 hPa
- Altitude: Up to 3000 m

In Storage

- Temperature: -10 to +50 degrees C
- Relative Humidity: 10 to 90% (non condensing)
- Atmospheric pressure: 700 to 1060 hPa

Power Requirement

- 100 - 120 / 200 - 240V ±10%, 50 or 60 Hz,
  Max. 600 VA (with optional units)
  Max. 250 VA (main unit only)

Dimensions

- Approx. 42 cm (W) × 62 cm (D) × 121 - 161 cm (H)

Weight

- Approx. 66 kg (main unit only)

- The specifications are subject to change without notice.
- The standard components and optional items differ depending on the country.
  Not all the products are marketed in all countries.
  Please contact your local Hitachi distributors for details.
- Prosound is a registered trademark or trademark of Hitachi, Ltd in Japan and other countries.
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