

SPECIFICATIONS
for
Diagnostic Ultrasound System

prosound α 10

Model SSD- α 10



ALOKA
THE INNOVATOR IN ULTRASOUND

ALOKA ProSound α 10

Striving to eliminate undesirable sound components from the transmitted ultrasound beam itself and with the ever-evolving ProSound technologies ALOKA has created the ProSound α 10 platform. With its Ultimate Compounding Technologies, stress-free operation and combination of versatility and performance, the ProSound α 10 provides the capability for a wide range of sophisticated diagnoses.

- Compound Pulse Wave Generator allows us to actually design the transmission waveform for individual application. The clear waveform enhances focus accuracy, spatial and contrast resolution, while reducing artifacts.
- Thanks to Precise Delay Timing Control, the accuracy of reception/transmission delay is four to eight times higher than conventional systems, providing high-resolution beams.
- Compound Array Probes enhance focus precision in the elevation direction and enable beams to be focused homogeneously from superficial to deep areas of interest.
- ProSound Unlimited
Unlimited expandability via a flexible and scalable system architecture allows for future hardware and software upgrades
- ProSound Usability
With ergonomic system architecture, the α 10 ensures higher examination efficiency.
- ProSound Utility
The α 10 offers various scan methods and probes with a wide range of storage media.

Scanning Method

- Electronic Convex Sector
 - Electronic Linear
 - Electronic Phased Array Sector
 - Mechanical sector/radial*
- * Option (EU-9109)

Image Display Modes ^{*1}

- B: gray-scale imaging
- M
- D: Spectral Doppler (PW, HPRF PW, and CW)
- Dual B
- Quad B
- B and M
- B and D
- B, M, and D
- B (Flow)
- B (Power)
- Dual B (Flow)
- Quad B (Flow)
- Dual B (PowerFlow)

- Quad B (PowerFlow)
- Dual B (eFlow^{*3})
- Quad B (eFlow)
- M (Flow)
- M (PowerFlow)
- B (Flow) and M (Flow)
- B (Flow) and D
- B (Flow) and D simultaneous real-time display (Triplex mode)
- B and B (Flow) simultaneous real-time display (DDD: Dual Dynamic Display)
- B and B (PowerFlow) simultaneous real-time display (DDD)
- B and B (eFlow) simultaneous real-time display (DDD)
- B (Flow), M (Flow), and D
- Intermittent trigger mode ^{*2}
- Monitor mode ^{*2} (Fundamental image/Intermittent C.H.E. image, side by side display)
- TDI (Tissue Doppler Imaging)
- Real-time 3D mode (Option: EU-9012 + SOP-ALPHA10-4)

Request function: In multi-mode display, it is possible to select one mode for full screen display.

^{*1} Probe dependent. ^{*2} Option: CHM-ALPHA10

^{*3} eFlow is optional: SOP-ALPHA-12

Beamformer

Transmission

CPWG (Compound Pulse Wave Generator)

Programmable waveform transmission

Reception

Multi processing high-speed digital beam former

12-bit A/D converter (4096 gray levels)

Delay precision: $1/64\lambda$ at minimum in both transmission and reception

Focusing

Lateral direction

Transmission: Multi-stage transmission focus of up to 4 stages out of 16 stages

Reception: PixelFocus™

Elevation direction

Compound Dual Focusing (when Compound Array probe is used)

Beam signal processing

Dynamic 4D apodization

Frame rate

Max. 926 frames/s*

* Depends on probe and various settings

B-mode

- Display Gray Scale: 256 levels
 - Scanning area:
 - 100% to 25%, continuously variable
 - Zoom
 - Write zoom (magnification of real-time image):
 - Max. 6 times (probe dependent)
 - Read zoom (magnification of frozen image):
 - Max. 16 times
 - Depth range selections:
 - 0.5-30 cm (probe dependent), changeable by 1 cm
 - Longitudinal and lateral inversion
 - Rotation by 90 degrees (probe dependent),
 - Frame rate (Line density): 3 selections (-1, 0, +1)
 - Gain*: 30 to 90 dB
 - STC (sensitivity time control) — gain versus depth curve control: 8 slide controls
 - Angle gain:
 - Gain versus angle curve control: 8 sectors (probe dependent)
 - Contrast*: 16 steps
 - AGC—Suppression of brightness saturation and Edge Enhancement: 16 steps
 - Relief: 4 steps
 - FTC: On/Off
 - Frame correlation: 16 steps (Auto/Manual)
 - Smoothing: 16 steps
 - Post Processing
 - Echo enhance curve: 5 kinds
 - Rejection: 64 steps
 - View gamma: 5 kinds
- * Gain and contrast can be changed after freezing

M-mode:

- Sweep method: Moving bar
 - Sweep speed*:
 - 17.5, 11.6, 8.7, 5.8, 4.4, 2.9, 2.2 cm/sec.
 - Gain*: B-gain ± 30 dB
 - Contrast*: 16 steps
 - AGC—Suppression of brightness saturation: 16 steps (including relief processing)
 - Relief: 4 steps
 - FTC: On/Off
 - FAM* (Free Angular M-mode)
 - Up to 3 M-mode cursors can be set omni-directionally on real-time at any position on a B-mode image.
- * Gain, contrast and sweep speed can be changed after freezing
- * FAM is optional (SOP-ALPHA10-5)

Spectral Doppler:

- Display: Power spectrum
- Real-time Doppler Auto Trace*
 - * Option: SOP-ALPHA10-3
- Doppler methods:
 - PW (Pulsed Wave) Doppler
 - HPRF (High Pulse Repetition Frequency) PW Doppler
 - CW (Continuous Wave) Doppler
- Reference frequencies (probe dependent):
 - PW: 2.14, 2.5, 3, 3.75, 5, 6, and 7.5 MHz
 - CW: 2.14, 3, 3.75, 5MHz
- Analysis rate:
 - PW: 0.5 to 20 kHz
 - CW: 0.5 to 42 kHz
- Max. velocity range:
 - PW: -6.37 to 0 or 0 to +6.37 m/sec (2.14 MHz reference freq., 0 degree, with base line shift)
 - CW: -15.90 to 0 or 0 to +15.90 m/sec (2.14 MHz reference freq., 0 degree, with base line shift)
- Base line shift: Possible up to double velocity (changeable after freezing)
- Steerable CW Doppler: Possible (probe dependent)
- Steered linear scanning: Max. ± 30 degrees changeable in 5 degrees step
- Spectrum inversion: Possible
- Angle correction:
 - Available up to 80 degrees, presetable (changeable after freezing)
- Sample volume size for PW Doppler:
 - 0.5 – 20 mm, changeable in 0.5 –1.0 mm step
- Wall motion filter:
 - Manual:
 - 50, 100, 200, 400, 800 or 1600 Hz,
 - Auto: varies in 12 steps
- Doppler gain: 0 - 50 dB
- Contrast: 16 steps (changeable after freezing)
- Black-and-white inversion: possible (changeable after freezing)
- Audio output: Stereo

Color Flow Imaging

- Display patterns:
Velocity (derived from mean Doppler frequency shift),
Velocity + variance, Variance, Power, TDI (Tissue Doppler Imaging)
- Color area size: Variable from 100% to 5% continuously
- Steered linear scanning:
Max. ± 30 degrees *, 5 degrees step changeable
* Probe dependent
- Line density: 9 steps
- Image Select: 3 selections
Resolution, Standard, Penetration
- Smoothing: 16 selections
- Flow filter: 6 selections
- Frame correlation: 16 selections
- Wall Motion Reduction: 16 selections
- Average: 3 levels
- Color coding (Possible to make with color coding editor)
Abdomen : 5 kinds
PV : 5 kinds
Cardiology : 5 kinds
Other : 5 kinds
User : 5 kinds

PowerFlow

- Gradation: 32 levels
- Color coding: 5 kinds
- Non-display of B/W image: Possible
- Smoothing: 16 levels

Directional PowerFlow: Possible

eFLOW*: One of the Color Flow imaging functions that can display blood flow information in a high spatial and temporal resolution.

Directional eFLOW*: Possible

* eFlow is optional: SOP-ALPHA-12

Color Doppler

- Reference frequency: (Probe dependent)
2.14, 2.5, 3, 3.75, 5, 6, and 7.5 MHz
- Pulse repetition frequency:
0.5 to 10.0 kHz
- Maximum velocity range:
- 1.23 to 0, or 0 to +1.23 m/sec
(at 2.14 reference frequency, with baseline shifted)
- Color base line shift:
Possible up to double velocity (± 31 steps)

- Gradation:
 ± 32 levels for velocity (red and blue)
16 levels for variance (green)
- Color Polarity: Normal, Inver

Cine Memory

- Cine search and loop display (in B mode):
ECG time phase display possible
- Cine scroll (in M or D mode):
Max. approximately 1000 seconds
- Capacity
B mode: Max. 16,320 frames (Possible to store a maximum of 404 seconds of 30 frames/s sector images.)
M and D modes: Max. approx. 1000 seconds.
- High-speed mutual data transfer between Cine Memory and hard disk is possible.

Note: The number of storable images in a loop depends on probe type, scanning angle and other conditions.

Data Management

1. Image data

1-1. Format

Multiple-frame (moving) image

Line data (DICOM)

Image data (DICOM M-JPEG)*

* Option: EU-9102 + SOP-ALPHA10-2

Single-frame (still) image

DICOM(Pallet, RGB, JPEG)

Tiff, Bmp, JPEG

1-2. Image acquisition mode

• Real-time multi-frame image acquisition (Line, Image)

Post ECG: Max. 4 cardiac cycles (R-R)

Pre ECG: Max. 4 cardiac cycles (R-R)

Post TIME: Max. 16 seconds

Pre TIME: Max. 16 seconds

Manual:

Line data: Up to the capacity of the Cine Memory

Image data: Max. 180 seconds

• Cine loop high-speed data transfer (Line, Image)

It is possible to selectively store data of arbitrary section in the Cine Memory.

• Multiple media simultaneous output

It is possible to output still image data to multiple of storage media and printer at the touch of a button.

1-3 Image data management tool

Image viewer

Thumbnail display of stored images (1-36 images)

Image zoom, rotation, inversion

1:1 replay (main unit HDD or DICOM storage data)

CD-R writing

Re-storing to media, transfer

2. Measurement data

It is possible to store measurement data in the main unit hard disk

3. Patient data

Displayed information*

Patient information: ID (up to 64 characters),

Name (up to 64 characters), Birthday, Sex

Study information: Study ID, Age, Height, Weight,

Accession, Referring physician, Study description,

Operator

Series information: Application

* Conforms to DICOM 3.0 standard

4. Data storage media

• Main unit hard disk

Usable space: up to about 32 GB

• Floppy disk

• MO disk

• CD-R

• Network interface: 10 BASE/T or 100 BASE/TX, (automatically switched)

5. DICOM network communication*

• Conformity to DICOM service class:

Ultrasound image storage SCU

Ultrasound multi-image storage SCU

Storage media FSC/FSR

Print management SCU

Modality worklist management SCU

(For details, please refer to the DICOM Conformance Statement issued by Aloka.)

Modality performed procedure step (MPPS) SCU

• Storage: Possible to store patient information directly to DICOM file server

• Print: Possible to printout images with DICOM compatible printer directly

• Work list management: Retrieval of patient and reservation information from hospital information system (HIS)

NOTE: The HIS needs to be compatible with DICOM standard supplement 10. The HIS network and the DICOM network need to be linked.

• Router setting: possible

• IHE (Integrated Healthcare Enterprise)

SWF (Scheduled Work Flow)

PIR (Patient Information Reconciliation)

* Option: SOP-ALPHA10-10

Measurement and Analysis:

- General measurements

On B-mode image

- Distance
- Area and Circumference (Trace, Ellipse, Circle)
- Volume (Spheroidal, Prolate, Area-length, BP Simpson, SP Simpson)—Automatic heart cavity trace is possible. (3-point designation method)
- Index (general purpose)
- Histogram
- Angle, Hip joint angle

On M-mode image

- Velocity
- Distance (amplitude)
- Time interval
- Heart rate
- Index (general purpose)

On spectral Doppler

- Velocity, Acceleration,
- Mean flow velocity, Pressure gradient
- RI: Resistance index,
- PI: Pulsatility index
- Pressure half time
- Heart rate
- Dop Caliper measurement
- Index (general purpose)
- Time interval
- Stenotic flow measurement
- Regurgitant flow measurement
- D. Trace

Doppler auto trace*: Possible

* Option: SOP-ALPHA10-3

On B/D mode

- Flow Volume
- SV/CO

On B(Flow) mode

- Flow Profile*
- * Option: SOP-ALPHA10-7

- Obstetrical measurements & calculations

- Gestational age, Fetal weight
- Fetal Doppler measurements
- Fetal cardiac function measurements
- AFI (Amniotic fluid index)
- Cervical length
- Compatible with multiple pregnancy
- Growth analysis function (display of past measurement data)

- Gynecological measurements & calculations

- Uterus measurements
- Endometrial thickness
- Cervical measurements
- Ovary measurements
- Follicular measurements
- Urinary bladder measurements
- Uterine artery, Ovarian artery measurements

- Cardiac analysis

B mode

- LV Volume measurements
 - Area-length, BP-ellipse, Simpson (Disc), Modified Simpson, Bullet, Pombo, Teichholz, Gibson)
 - Automatic heart cavity trace is possible. (3-point)
- Valve area measurements (AVA, MVA)
- LA/AO
- Ratio
- Right ventricle measurements
- LV myocardial mass
- IVC (inferior vena cava) measurement

M mode

- Pombo (wall), Teichholz (wall)
- Gibson (wall)
- Mitral valve measurements
- LA/Ao measurements
- Tricuspid valve measurements
- Pulmonary valve measurements
- IVC (inferior vena cava) measurement

Doppler mode

- LVOT (left ventricle outflow tract) flow
- RVOT (right ventricle outflow tract) flow
- Trans-mitral flow
- Regurgitant flow (AR, PR, MR, TR)
- Stenotic flow (AS, PS, MS, TS)
- Pulmonary vein
- Coronary flow
- TDI PW
- IMP (Index of Myocardial Performance)*
- * Option: SOP-ALPHA10-8

B(Flow)/D mode

- PISA measurement

TDI PowerFlow mode

- BETA (B and B/M (longitudinal) modes)

- Vascular analysis

Carotid artery:

- CCA (common carotid artery)
- ICA (internal carotid artery)
- ECA (external carotid artery)
- BIFUR (Bifurcation of carotid artery)
- VERT (Vertebral artery)
- % Stenosis area
- % Stenosis diameter
- IMT (Intima-media thickness)
- Measurements of arteries in extremities:
 - Lower extremity artery flow
 - Upper extremity artery flow
- Stenotic rate:
 - % Stenosis area
 - % Stenosis diameter

- Measurements of veins in extremities:
 - Lower extremity venous flow
 - Upper extremity venous flow
- Trans-cranial blood flow measurement

- Urological measurements & calculations
 - Prostate volume: PSA volume, PRS Slice volume
 - Bladder volume
 - Seminal vesicle
 - Testicle volume
 - Renal volume
 - Cortical thickness
 - Adrenal volume
 - Renal artery Doppler measurements (pulsatility index, resistance index)

- Abdominal measurements
 - Stenotic rate (diameter, area)
 - Gall bladder
 - Common bile duct
 - Pancreas
 - Kidney
 - Spleen
 - SOL (Space Occupying Lesion)
 - Abdominal aortic diameter
 - Portal vein diameter
 - Renal artery blood flow
 - Abdominal blood flow
 - Shunt flow
 - Flow volume

- Report Functions
 - Obstetrical report
 - Gynecological report
 - Cardiac function report
 - Vascular report
 - IMT (Intima-Media Thickness) report
 - Urological report
 - Abdominal measurements report

It is possible to recall past measurement reports.
 Examination data history can be plotted on the report.
 Direct printout of each report is possible with an optional PC printer.
 Output of measurement values in CSV file is possible.

- Hot Key function; It is possible to assign measuring functions to the alphabet keys on the keyboard
- Measurement on VCR playback image: Possible (manual calibration)
- User's calculation
 - 6 equations can be set for each application

BETA (Backscattered Energy Temporal Analysis)

Backscattered wave from the cardiac muscle is frequency-analyzed to obtain instantaneous energy. It is possible to capture cyclic variation of the myocardium.

Physiological Signal Display*¹

- Displayed information: ECG, PCG, Pulse wave*², breathing waveform
- ECG synchronized display: Available for one phase
- Display position: Continuously variable (both in B and M modes)

*1 Option: PEU-ALPHA10B

*2 Pulse wave transducer (TY-307A) is optional.

Brachytherapy grid display*

It is possible to display grid for prostate gland brachytherapy.

* Available when UST-678 is connected.

Optional Functions

PC printer*

It is possible to printout report of OB/GYN, cardiology, PV, and urology including ultrasound images directly with an external PC printer.

* HP Deskjet 5740 and CANON PIXUS iP4000 printers have been verified for operation. For detailed information on compatible printers, please inquire of Aloka.

RT-3D (Real-time 3D)*

Trans-abdominal 3D probe (ASU-1010) and trans-vaginal 3D probe (ASU-1012):

- Scanning rate: up to 10 volumes/sec
- It is possible to display 3 arbitrary sections simultaneously
- Omnidirectional rotation (360 degrees in any direction)
- 5 kinds of rendering selectable
- Detail scan of the ROI (Region of interest) is possible
- B-mode measurements are possible on an arbitrary plane

Transthoracic cardiac 3D probe (ASU-1011):

- Scanning rate: Max 15 volumes/sec (60 deg. X 60 deg.)
 - Scanning angle: Max. 90 deg. X 60 deg.
- * Option: EU-9102 + SOP-ALPHA10-4

EFV (Extended Field of View)*

It is possible to display an image of an extensive range of the body by moving the probe. An area wider than the scanning width of the probe can be displayed.

* Option: EU-9102 + SOP-ALPHA10-1

CHE (Contrast Harmonic Echo)*

Contrast agent such as Levobist generates abundant second harmonics when disrupted, which eases detection by Harmonic Echo. In Subtraction mode, difference from the reference image is displayed to clarify the distribution of the contrast agent.

- Monitor mode

In the Monitor mode, images are available with a low sound pressure during the intermission of intermittent high sound pressure transmission.

- Possible with UST-9130

Option: CHM-ALPHA10

Optional Analysis Functions

Comprehensive Cardiac Analysis*

A-SMA* (Automated Segmental Motion Analysis)

The A-SMA can automatically detect the boundary between the cardiac cavity and the endocardium to calculate the area of the cavity in each frame, enabling quantification of endocardial segmental motion.

- FAC (Fractional Area Change) can be displayed in line graph mode.
- In histogram mode, FAC of each segment can be displayed in real time as a bar graph.

KI* (Kinetic Imaging)

The KI can automatically detect the boundary between the cardiac cavity and the endocardium based on the brightness information of the gray scale image and displays the temporal change of the boundary with change of color or gradation.

CQ* (Cardiac Quantification)

It is possible to display variation of LV function indexes in real time as a line graph.

Indexes: EF (Ejection Fraction), Volume, etc.

WT* (Wall Thickness)

It is possible to display variation of myocardial thickness in real time as a line graph.

* Option (EU-9100) + PEU-ALPHA10B (Physiological Signal Display unit)

eTRACKING (Echo Tracking) *

It is possible to precisely measure displacement of blood vessel to obtain indexes of stiffness of the vessels such as pressure-strain elastic modulus (E_p), stiffness parameter (β), arterial compliance (AC), one-point pulse wave velocity (PWV β), and augmentation index (AI).

* Option: SOP-ALPHA10-11

TDI analysis*

B-mode

Temporal Velocity Profile

Velocity, time, acceleration, ratio

Regional Velocity Profile

Velocity, distance

TDI-Myocardial Thickness (Wall thickness)

Distance, time, velocity

Strain rate

Time, strain rate

Strain

Time, strain

M-mode

Velocity trace

Velocity, time, acceleration, ratio, velocity difference

TDI-Myocardial Thickness (wall thickness)

Distance, time, velocity

Velocity Profile

Velocity, distance

CSV output of analyzed data is possible. CSV is a file format that can be taken into Excel file directly.

* Option: SOP-ALPHA10-13B

Contrast Echo analysis*

• Image Subtraction

Fixed Reference: Subtraction of reference frame from all frames

Any 2 Frame: Subtraction between 2 selected frames

Display modes: All images, arbitrary images

• Time-Intensity Curve display for subtraction images: available

Series: Graphic display in frame sequence or time sequence

By Group: Graphic display with the time of one sequence of intermittent acquisition as the horizontal scale (Graphs of multiple sequences are overlapped.)

Display mode: Image, Graph

ROI type: Square, Draw, Arc, and Circle

* CSV output of analyzed data is possible.

* Option: SOP-ALPHA10-14

Stress Echo analysis*

Image acquisition methods:

- ECG synchronized acquisition
- Compatible frame rate: Up to 75 Hz
- Recalled screen
 - Playback speed: Variable
 - Image allocation: Possible
 - Scoring: Possible
 - Automatic registration: On/Off

Protocol:

- Exercise stress protocols:
 - Exercise Stress Echo
 - Treadmill Exercise
 - Bicycle Exercise
- Pharmacological stress protocols:
 - DSE
 - High-Dose DSE
 - Low-Dose DSE
 - Arbutamine
 - Dipyridamole
- User's protocol: The user can make a protocol within 8 images X 12 stages in 1 stage.
- Full disclosure (Multi acquisition): possible for 180 seconds
- Scoring screen
 - Playback speed: Variable
 - Comparison with the reference image is possible
 - Image playback range is selectable
 - Systolic image
- Report screen
 - Display format
 - Chart/Stage overview/View overview

* Option: SOP-ALPHA10-15B

(Physiological Signal Display unit PEU-ALPHA10B is also necessary.)

Brachytherapy*

It is possible to display grid for prostate grand brachytherapy.

* Option: SOP-ALPHA10-17

Acoustic Power

- 0 to 100%, continuously changeable

Preset Function

- 45 separate programs for specific clinical applications and/or users
- User programmable and/or factory default settings
- Factory default settings: 33 kinds
- Preset contents storable in a floppy disk

Characters and graphic displays

- Character input area:
ID, name, age, sex, retained text
- Automatic Annotation Labeling:
120 words or more (User registration is possible.)
- Body mark: 47 kinds
Body mark editor to create user's body mark: 24 kinds

Menu control

8.4-inch color TFT LCD touch panel

Number of Probe Connectors

- For electronic scanning probes: 4
- For mechanical scanning probes*¹: 1
- For independent probes*²: 1

*¹ Option: EU-9109

*² Option: EU-9110

Video Signals (for printer, VCR, DVD)

- Input:
Y/C
Audio (L/R), 1 channel each
 - Output:
Color composite (BNC): 1 channel
B/W composite (BNC): 1 channel
Audio (L/R): 1 channel
Y/C color: 1 channel
Y/C B/W: 1 channel
 - Resolution: 640 x 480 pixels
No conversion of the displayed image. Output of trimmed image is possible.
 - High-resolution DV output*: 800 x 600 pixels (for DV-800)
- * Option: DV-800 main unit and DV-800 adaptation kit PM-A10-H001 are necessary.

Viewing Monitor

- 17-inch diagonal multi-sync display
SVGA non-interlaced monitor
- Tilt and swivel are possible.
- Height adjustment together with operation panel:
Possible

Safety Regulation

- Complies with IEC 60601-1 Class I, 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

In Storage/transportation

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

Power Requirement

- 115/ 200 to 240V ±10%, 50 or 60 Hz,
Max. 1500 VA (with optional recorders connected)
Max. 800 VA (main unit only)

Dimensions

- 58 cm (W) × 109 cm (D) × 144 – 157 cm (H)

Weight

- Approx. 210 kg (main unit only)

System Configuration

ProSound α10 main unit (including 17-inch monitor)		
Optional Software	Optional Recorders/Printers/Units	
Contrast Harmonic Echo	VCR	Physiological Signal Display unit
CHM-ALPHA10	MITSUBISHI NTSC: HS-MD3000U PAL: HS-MD3000E * RS232C interface and 34-pin interface are optional	PEU-ALPHA10B
Real Time DOP Auto Trace		Pulse wave transducer: TY-307A
SOP-ALPHA10-3		Comprehensive Cardiac Analysis unit (KI, A-SMA, CQ, WT)
FAM (Free Angular M-mode)	DVD recorder	EU-9100
SOP-ALPHA10-5	DVD-BD-X201M (VICTOR)* ¹ * ¹ Connection cable L-CABLE-756 is necessary for remote control from main unit.	Footswitch
Flow Profile	DVD-DVO-1000MD (SONY)* ² * ² Connection cable KRS-9F25F02K (SANWA SUPPLY) is necessary for remote control from main unit.	MP-2345B, MP-2614B
SOP-ALPHA10-7	DVD-DV-800 (TEAC)* ³ * ³ PM-A10-H001 is necessary for connection of this recorder.	Mechanical scanning probe connection unit
IMP (Index of Myocardial Performance)		EU-9109
SOP-ALPHA10-8		Independent probe connection unit
DICOM communication	B/W printer	EU-9110
SOP-ALPHA10-10	SONY NTSC: UP-895MD, UP-D897MD PAL: UP-895CE, UP-D897CE Worldwide: UP-895MD/SYN UPD-897MD/SYN	
eTRACKING		
SOP-ALPHA10-11		
eFLOW		
SOP-ALPHA10-12		
TDI/Strain Analysis	MITSUBISHI NTSC: P93W PAL: P93E	
SOP-ALPHA10-13B		
CHE analysis	Color Printer	
SOP-ALPHA10-14	SONY (NTSC/PAL): UP-21MD (CED) UP-D23MD	
Stress Echo function	MITSUBISHI NTSC: CP900UM PAL: CP900E	
SOP-ALPHA10-15B		
Host Interface Unit		
EU-9102		
Extended Field of View		
SOP-ALPHA10-1		
Motion JPEG		
SOP-ALPHA10-2		
Real Time 3D		
SOP-ALPHA10-4		

OPTIONAL PROBES

Electronic convex sector probes

THE: Tissue Harmonic Echo, CHE: Contrast Harmonic Echo

Application (description)	Model	Ultrasound Frequencies (MHz)		Scanning angle (degrees)	Radius of curvature (mmR)	Optional accessories
		B and M modes	Doppler/Flow			
General abdomen, OB/GYN (THE and CHE) (Compatible with eFV and eFLOW)	UST-9130	3.0/3.75/5.0/6.0 THE: 2.14/2.5 CHE: 1.88/2.14	Flow: 2.14/2.5/3.0/3.75 PW: 2.5 CHE: 1.88/2.5	60	60	Puncture adapter: MP-2473
General abdomen, OB/GYN (Compatible with eFV and eFLOW)	UST-9115-5	3.75/5.0/6.0/7.5	Flow: 3.0/3.75/5.0 PW: 3.75	60	60	
General abdomen, intercostal scanning (THE and CHE)	UST-9128	3.0/3.75/5.0/6.0 THE: 2.14 CHE: 1.88/2.14	Flow: 2.5/3.0 PW: 2.5	120	14	Puncture adapter: MP-2474
Small part, Neonatal head (Compatible with eFLOW)	UST-9120	5.0/6.0/7.5/10.0	Flow: 3.75/5.0/6.0/7.5 PW: 5.0	70	20	Puncture adapter: MP-2458
Endo-cavity (Compatible with eFLOW)	UST-9118	3.75/5.0/6.0/7.5	Flow: 5.0/6.0 PW: 5.0	180	9	Puncture adapter set MP-2748-SET Probe cover: RB-945BP-S (Sterilized*) RB-945BP-NS (Nonsterilized)
Endo-cavity (Compatible with eFLOW)	UST-675P	3.75/5.0/6.0/7.5	Flow: 5.0/6.0 PW: 5.0	180	9	Puncture adapter MP-2452 is attached as standard Probe cover: RB-665P-NS (Non-sterilized) RB-665P-S (Sterilized*)
Intraoperative, Abdominal biopsy (THE and CHE) (Compatible with eFLOW)	UST-9133	3.0/3.75/5.0/6.0 THE: 2.14 CHE: 1.88/2.14	Flow: 2.14/2.5/3.0 /3.75 PW: 2.5/3.0	82	20	Puncture adapter : MP-2781
Intraoperative	UST-9132I	5.0/6.0/7.5/10.0	Flow: 3.75/5.0/6.0 /7.5 PW: 3.75/5.0	65	20	-
Intraoperative	UST-9132T	5.0/6.0/7.5/10.0	Flow: 3.75/5.0/6.0 /7.5 PW: 3.75/5.0	65	20	-

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

Electronic linear probes

Application (description)	Model	Ultrasound Frequencies (MHz)		Scanning width (mm)	Optional accessories
		B and M modes	Doppler, Flow		
Peripheral vessels/ Small parts (Steered linear) (EFV compatible) (eFLOW compatible) (Harmonic Echo) (Compound Array)	UST-5411	5.0/7.5/10.0/13.0 THE.: 5.0	Flow: 5.0/6.0/7.5 PW: 5.0	38	-
Peripheral vessels/ Small parts (Steered linear) (EFV compatible) (eFLOW compatible) (Harmonic Echo)	UST-5412	5.0/7.5/10.0/13.0 THE.: 5.0	Flow: 5.0/6.0/7.5 PW: 5.0	38	-
Small part (Steered linear) (EFV compatible)	UST-5712	5.0/6.0/7.5/10.0	Flow: 5.0/6.0/7.5 PW: 6.0	60	Puncture adapter: MP-2456 Water path: MP-2463
Intraoperative	UST-5713T	5.0/6.0/7.5/10.0	Flow: 5.0/6.0/7.5 PW: 6.0	60	Puncture adapter: MP-2448
Intraoperative	UST-547	7.5/10.0/13.0	Flow: 5.0/6.0/7.5 PW: 6.0	20	-
Microsurgery	UST-533	7.5/10.0/12.0/13.0	Flow: 5.0/6.0/7.5 PW:6.0/7.5	10	Handling tool T type: MP-2749 Handling tool I type: MP-2750
Superficial tissue (Steered linear)	UST-5543	7.5/10.0/13.0	Flow: 5.0/6.0/7.5 PW: 6.0	38	-
Peripheral vessels (Steered linear) (Compatible with eFLOW) (Harmonic Echo)	UST-5548	3.75/5.0/6.0/7.5 THE:3.75	Flow: 3.0/3.75 /5.0/6.0 PW: 3.75/5.0	38	-
Intraoperative (Flexible laparoscopic) (Steered linear)	UST-5550	5.0/6.0/7.5/10.0	Flow: 5.0/6.0/7.5 PW: 5.0/6.0	38	-

Electronic convex sector/linear combination probe

Application	Model number		Ultrasound Frequencies (MHz)		Scanning angle/width	Radius of curvature (mmR)	Optional accessories
			B and M modes	Doppler & Flow			
Transrectal (Bi-plane: Convex sector + Linear)	UST-678	Sector	3.75/5.0/6.0/ 7.5	Flow: 3.0/3.75 /5.0/6.0 PW :3.75/5.0	120 deg.	9	Puncture adapter: MP-2451
		Linear	5.0/6.0/7.5/ 10.0	Flow:5.0/6.0 PW :5.0/6.0	60 mm	-	Probe cover: BL-664-S (sterilized)* ² BL-664-NS(Non-sterile) Elastic band: FS5/16 Grip holder:MP-2447

*² Sterilized probe cover cannot be sold in EU member countries.

Electronic phased array sector probes

T.E.E.: Trans-esophageal Examination, T.H.E.: Tissue Harmonic Echo

Application (description)	Model	Ultrasound Frequencies (MHz)		Scanning angle (degrees)	Optional accessories
		B and M	Doppler & Flow		
Cardiology (T.H.E.)	UST-52101	2.5/3.0/3.75/5.0 T.H.E.: 1.88	Flow: 2.14/2.5/3.0/3.75 PW: 2.14/2.5/3.0/3.75 CW: 2.14	90	-
Pediatric cardiology (T.H.E.)	UST-52108	3.75/5.0/6.0/7.5 T.H.E.: 3.0	Flow: 3.0/3.75/5.0 PW: 3.75/5.0 CW: 3.75	90	-
Rotary plane T.E.E.	UST-5293-5	3.75/5.0/6.0/7.5	Flow: 3.75/5.0 PW: 3.75 CW: 3.75	90	-
Neurosurgery (burr hole)	UST-52114P	3.75/5.0/6.0/7.5	Flow: 3.75/5.0 PW: 3.75/5.0	90	Includes biopsy adapter as standard
Neonatal cardiology	UST-5296	5.0/6.0/7.5/10.0	Flow: 5.0 PW: 5.0 CW: 3.75	90	-
Neonatal and pediatric T.E.E.	UST-52110S	3.75/5.0/6.0/7.5	Flow: 3.0/3.75/5.0 PW: 3.75/5.0 CW: 3.75	90	-
Pediatric T.E.E. (Bi-plane)	UST-52111S	3.75/5.0/6.0/7.5	Flow: 3.0/3.75/5.0 PW: 3.75/5.0 CW: 3.75	90	-
Motorized T.E.E. (T.H.E.)	UST-52116	3.75/5.0/6.0 THE: 3.0	Flow: 3.0/3.75/5.0 PW : 3.0/3.75 CW : 3.75	90	-

3D Probes*

* EU-9102 and SOP-ALPHA10-4 are necessary.

Application	Model	Ultrasound Frequencies (MHz)		Scanning angle (degrees)	Radius of curvature (mmR)	Optional accessories
		B, M	Doppler/Flow			
Trans-abdominal scanning (Harmonic Echo)	ASU-1010	3.75/5.0/7.5/10 THE: 2.14/2.5	Flow: 2.14/2.5/3.0 /3.75 PW: 2.5	60/60	40	—
Trans-vaginal scanning (Harmonic Echo)	ASU-1012	3.75/5.0/6.0/7.5 THE: 2.5/3.0	Flow: 5.0/6.0 PW: 5.0	140/90	10	Probe cover: RB-945BP-S (Sterilized*) RB-945BP-NS (Nonsterilized)
Cardiology	ASU-1011	2.5/3.0/3.75/5.0 THE: 1.88	Flow: 2.14/2.5 /3.0/3.75 PW: 2.14/2.5/3.0 /3.75 CW: 2.14	90/60	-	—

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

ANNULAR ARRAY MECHANICAL SECTOR PROBE *

* Mechanical scanning unit **EU-9109** is necessary.

Application	Model	Ultrasound Frequencies (MHz)		Scanning angle (degrees)	Optional accessories
		B, M	Doppler/Flow		
Small parts	ASU-36WL-10	10.0	-		Puncture adapter: MP-2493

MECHANICAL RADIAL PROBES *

* Mechanical scanning unit **EU-9109** is necessary.

Application	Model	Ultrasound Frequencies (MHz)		Scanning angle (degrees)	Optional accessories
		B, M	Doppler/Flow		
Trans-rectal	ASU-67	7.5/10.0	-	360	Puncture adapter: MP-2493
Transurethral	ASU-65B	7.5	-	360	Outer sheath adapters for STORZ #27040B: MP-2421 for Olympus A3128, A2101: MP-2422 for A.C.M.I. #8414: MP-2423 for Wolf #8654.021: MP-2424

Independent CW Doppler Probes *

* Independent probe connection unit **EU-9110** is necessary.

Application	Model	Ultrasound Frequencies (MHz)		Optional accessories
		B, M	Doppler	
CW Doppler (for heart)	UST-2265-2	-	CW: 2.14	-
CW Doppler (for peripheral vessels)	UST-2266-5	-	CW: 5.0	-

- The specifications are subject to change without notice.
- The standard components and optional items depend on the country.
Not all the products are available in all countries.
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