



prosound α7

ALOKA
illuminate the change

Powerful, Friendly and Compact Ultrasound System

The ProSound $\alpha 7$ is a diagnostic ultrasound system that contradicts the thought that high-performance systems are large. It inherits the proven technologies and functions of Aloka's high-end product, yet offers outstanding mobility thanks to being the smallest size in its class. The system is easily transported to deliver high performance throughout the hospital.

The Broadband Harmonics realizes high sensitivity that is comparable to fundamental imaging even with Harmonic Echo imaging.

Directional eFLOW features enhanced spatial resolution for greater detail of blood flow information.

The comprehensive cardiovascular analysis functions, including eTRACKING for evaluation of early atherosclerosis, contribute from prevention to treatment.

The 3D Automated Volume Measurement (AVM) requires no manual tracing for accurate 3D volume calculation. Contrast Harmonic Echo (CHE) is compatible with all high-, medium- and low-sound pressure contrast agents. With these versatile functions, the ProSound $\alpha 7$ is the ideal choice for expert analyses in a wide range of applications.

Significant effort was exerted to create a system that would alleviate user fatigue and increase patient throughput by applying universal design.

The use of ecologically friendly materials, low power consumption and low noise design makes the unit environment friendly.



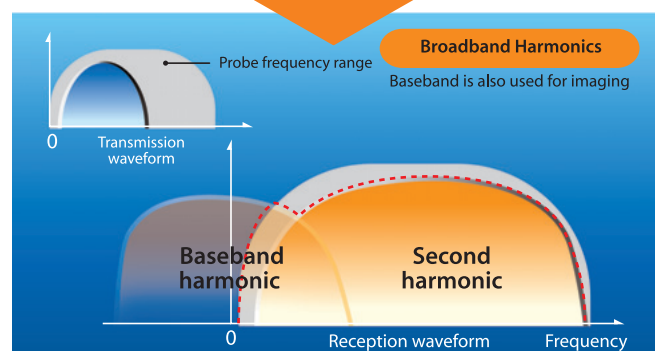
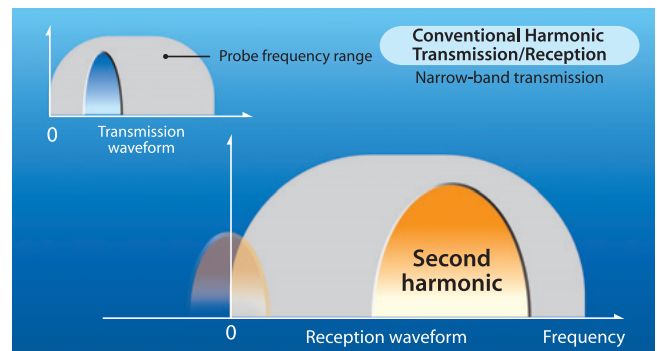
High-performance for Easier Diagnosis

The ProSound $\alpha 7$, following the design concept of the higher-end models, provides images of excellent contrast and spatial resolution.

Fewer side lobes and higher signal-to-noise ratio reduces unnecessary information on the images, making the diagnosis easier.

Broadband Harmonics

The ProSound $\alpha 7$ has successfully achieved both high penetration and spatial resolution not only in the fundamental imaging but also in the Harmonic Echo imaging. In addition to the advantageous effect of harmonic imaging—reduction of artifacts caused by side lobes and multiple echoes, more detailed image information and deeper penetration are available.



●Directional eFLOW (D-eFLOW) —————

Displays high-resolution blood flow with directional information.

Compared with conventional blood flow display methods, D-eFLOW features enhanced spatial and time resolutions for greater detail. Blood flow can be displayed separately from tissues with little overlapping. Furthermore, D-eFLOW uses color to differentiate blood vessels according to the direction of flow, facilitating discrimination of blood vessels.



●Image Optimizer —————

Instantly optimizes the brightness of the entire B-mode image. The user is freed from frequent image adjustments during examination, resulting in enhanced examination efficiency. The system automatically learns the gain value setting so that the user's favorite brightness setting is always reflected in this optimization.



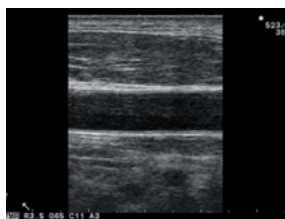
Before adjustment



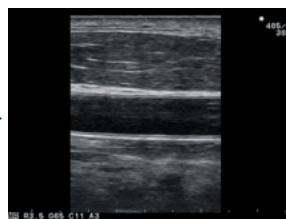
Image Optimizer: ON

●Edge Optimizer —————

The Edge Optimizer reduces speckle noise and emphasizes the tissue boundary to provide crisp images. The vessel intima and pericardia, in particular, are depicted with good continuity.



Level 1 (Soft image)



Level 8 (Hard image)

●Adaptive Image Processing (AIP) —————

For speckle reduction

AIP clearly displays differences in tissues, reducing speckle noise while maintaining the high frame rate. It can also display outlines more clearly by selectively emphasizing boundaries.



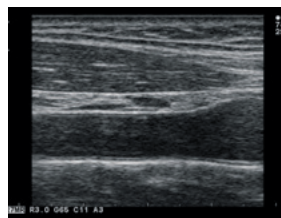
AIP: OFF



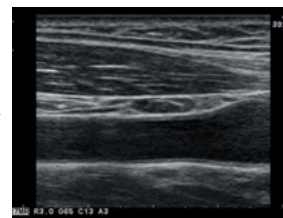
AIP: ON

●Spatial Compound Imaging (SCI) —————

Offers enhanced capability for depicting sidewall structures of tubular cavities and the like by superposing images created by steering the ultrasound beam in multiple directions. Speckle patterns of the parenchyma of organs are depicted much smaller while reducing artifacts dependent on beam direction.



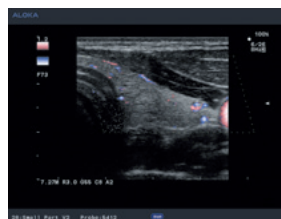
SCI: OFF



SCI: ON

●Trapezoidal Scan —————

Images by linear probes are displayed as a trapezoidal form. This provides a wider field of view than with conventional displays, to facilitate anatomical understanding of the region of interest. Trapezoidal Scan allows users to view the peripheral areas that are difficult to observe with conventional display due to limited acoustic windows.





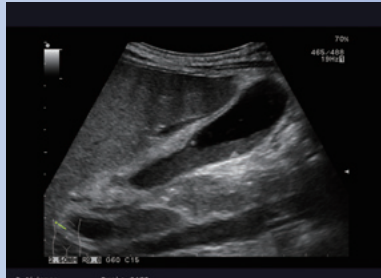
High Image Quality for Easier Diagnosis



Metastatic liver cancer



HCC



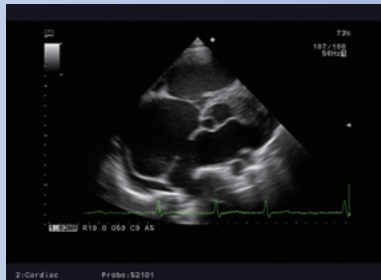
Biliary sludge



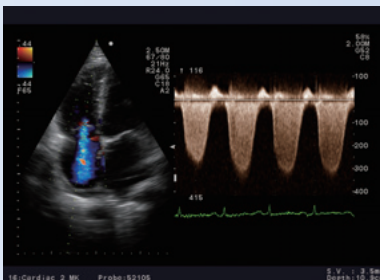
Umbilical cord



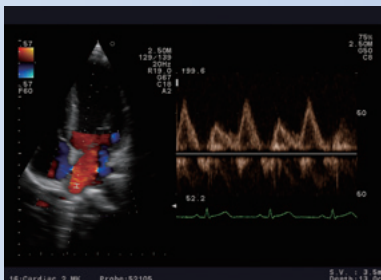
Fetal cerebral blood flow



ASD



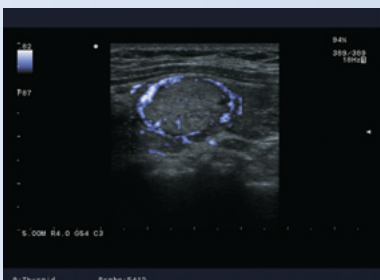
TR



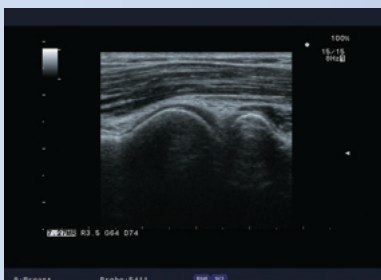
PV



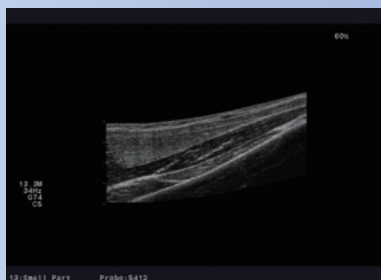
Axillary lymph node



Thyroid tumor



Elbow joint



EFV image of upper extremity

Women's Healthcare

Gently Supporting the Wellness of Mother and Baby

eFLOW

Blood flow is depicted clearly with high resolution.

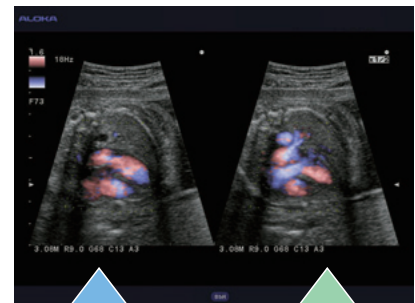


Fetal cardiac flow

D.S.D (Dynamic Slow-motion Display)

It is possible to display a real-time image and slow-motion images side by side. For example, while a real-time image of 2 cardiac cycles is displayed, it is possible to display a slow-motion image of 1 cardiac cycle at a half speed (the image is refreshed at the R waves of ECG).

This eases observation of objects moving fast, such as the fetal heart, valve leaflet, and regurgitated flows.

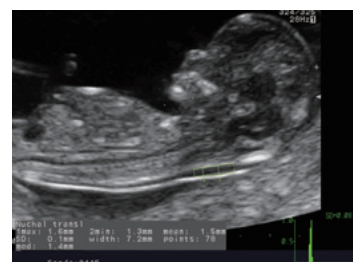


Real-time image

Slow-motion image

Automated Nuchal Translucency (NT) measurement

The Automated NT measurement automatically detects maximum NT and minimum NT simply by setting a Region of Interest (ROI) on the fetal posterior neck.



Courtesy of
Dr.Marc Althuser,France



3D/4D Imaging

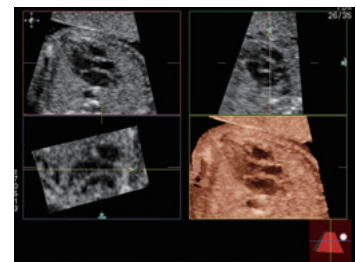
- Real-time 3D images (4D images) of smooth are displayed by using the dedicated probe.
- The user can construct 3D images manually using an ordinary 2D probe* (freehand 3D function).

* Contact us for the applicable probes.



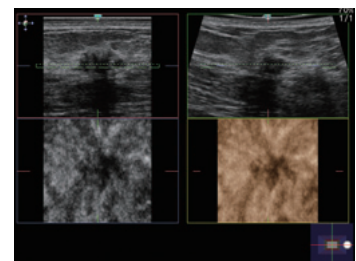
STIC (Spatiotemporal Image Correlation)

A fetal heart beats approximately twice that of an adult, thus making it difficult to acquire volume data. STIC collects images of the same time phase from the data of multiple heart beats and constructs volume data and displays 3D images. The ProSound α7 allows for detection of fetal heart beats and image reconstruction with higher precision by analyzing time phase using M-mode waveform or Doppler spectrum pattern. STIC is useful in observing movement of the fetal heart on planes not seen with usual 2D scanning.



Small part 3D imaging

Our 3D scanning probe incorporating a high-frequency linear transducer array can obtain volume data set of small parts including the mammary gland with high resolution.

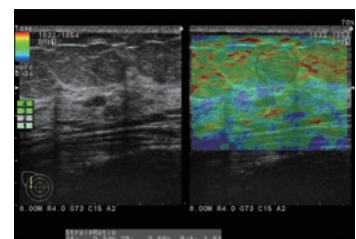


Courtesy of
Prof. WANG Yi, Huashan Hospital, Fudan University,
Shanghai, China

Real-time Tissue Elastography®

This function is used to visualize the stiffness of a tissue in real time. The strain generated in a tissue on applying pressure is represented by colors: stiffer areas (areas of smaller deformation) are shown in blue. Strain Ratio calculates and numerically displays the deformation ratio between two arbitrary regions, e.g., fatty tissue and the region of interest for more objective quantification.

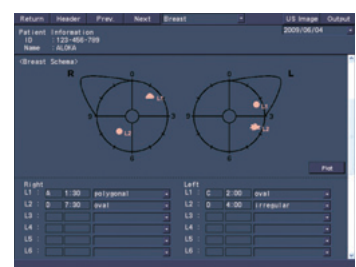
Real-time Tissue Elastography is a registered trade mark of Hitachi Medical Corporation
This function is licensed from Hitachi Medical Corporation.



Uterine artery
Blood flow display by D-eFLOW



Image by 180-degree transvaginal probe



Mammary gland examination report

Cardiovascular

Providing total support from preventive medicine to treatment

Early stage with no organic change

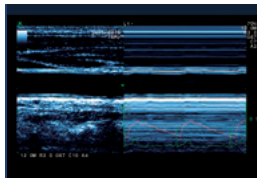
- Evaluation of endothelial function
- Evaluation of arterial stiffness

eTRACKING (Echo Tracking)

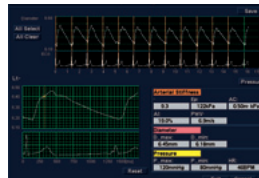
eTRACKING is designed to measure, automatically and in real time, changes in vessel diameter. The tracking gate follows movement of the vessel wall caused by pulsation with a precision as high as 0.01mm.

Arterial Stiffness

The parameters necessary for quantitative evaluation of early stage atherosclerosis— β (stiffness parameter), Ep, Augmentation Index (AI) and one-point PWV—are obtained at a single measurement and displayed onscreen.



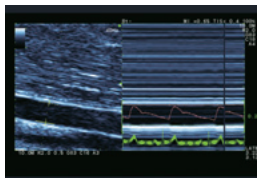
Measurement screen



Analysis screen

FMD (Flow Mediated Dilatation)

FMD analysis is known as an effective means for evaluating a blood vessel's endothelial function non-invasively.



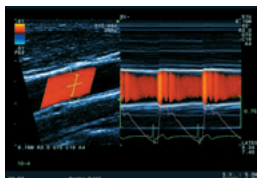
Measurement screen



FMD analysis

WI (Wave Intensity)

Wave intensity is a hemodynamic index potentially useful for analysis of the interference between the heart and the vascular system.



Measurement screen



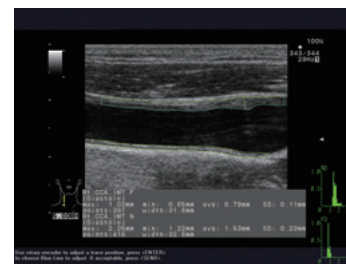
Analysis screen

Onset of organic change

- Measurement of IMT, flow velocity, and stenotic ratio

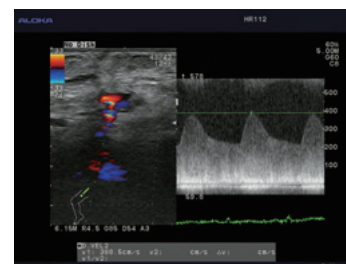
IMT (Intima-media Thickness) automated measurement

It is possible to automatically extract max IMT and mean IMT only by setting ROI (region of interest) on a long-axis view of the vessel.



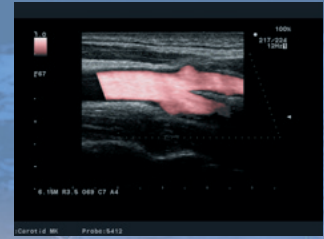
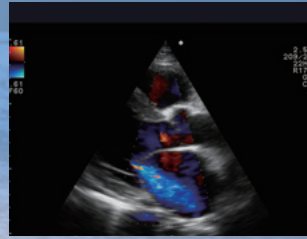
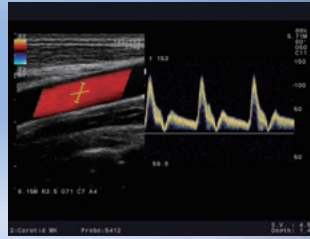
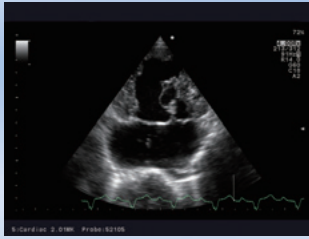
Steerable CW Doppler with a Liner Probe

Ever faster flow can be observed with a linear probe. It is possible to detect stenotic flows and the like in the superficial vessels with a wide field of view keeping a high image quality with no need to change the probe into a sector one.



Clinical case
Lower extremity vessels
A case of arteriovenous fistula in which a fast blood flow of slightly less than 4 m/sec is observed.

Courtesy of
Saitama medical University
International Medical Center
Tetsuya Yamamoto
Makoto Matsumura

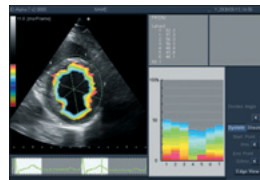


Onset of angina/myocardial infarction

• Evaluation of Ischemic Cascade

A-SMA (Automated Segmental Motion Analysis)

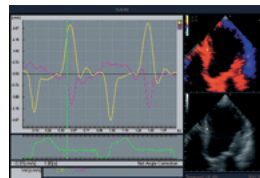
A-SMA employs a unique algorithm to automatically trace the endocardium. The cardiac wall motion is quantified by the change in the cross-sectional area of each segment.



Histogram (systole)

Strain/Strain rate

Strain analysis is used to examine local cardiac function by measuring the elongation and shrinkage of the regional myocardium between two designated points. Strain analysis is attracting attention since it is less affected by tethering and translation.



Strain analysis

〈Useful analyzing functions〉

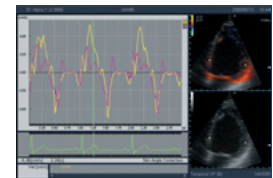
Wall Thickness (WT)
Myocardial Thickness
Stress Echo

Phase of treatment

• Contribution to CRT

TDI (Tissue Doppler Imaging) analysis

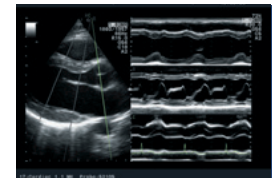
Asynchrony can be evaluated with greater precision using TDI analysis, which lets the ROI automatically track regional myocardial motion.



TDI analysis

FAM (Free Angular M-mode)

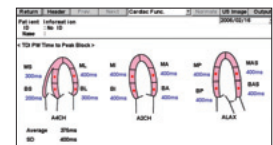
FAM enables comparison of wall motion at multiple locations simultaneously.



FAM

Asynchrony measurement report

It offers the parameters necessary for evaluation of atrioventricular, inter-ventricular and intra-ventricular deficiencies in one Study.

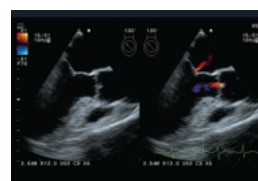


Asynchrony measurement report

Patient Friendly Trans-esophageal probes (TEP)

Aloka's trans-esophageal probes are designed to be as thin as possible to reduce patient discomfort, while maintaining the highest image quality and performance.

- Neonatal TEP
- Pediatric Rotary-plane TEP
- Rotary-plane TEP



UST-5293S-5 Rotary-plane TEP



UST-52110S Neonatal TEP

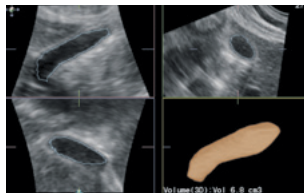
Note: Some models of transesophageal probes are not marketed in some countries and areas.

For more advanced examinations

3D Volume Measurement

Automated Volume Measurement (AVM)

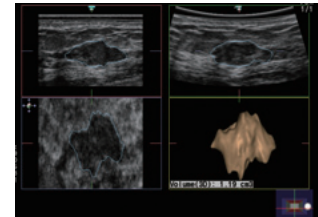
It is possible to easily measure volumes of cavities such as those of a gallbladder and cyst, or the volumes of parts where echo brightness is higher than that of the surrounding area by automatically detecting the three-dimensional boundaries.



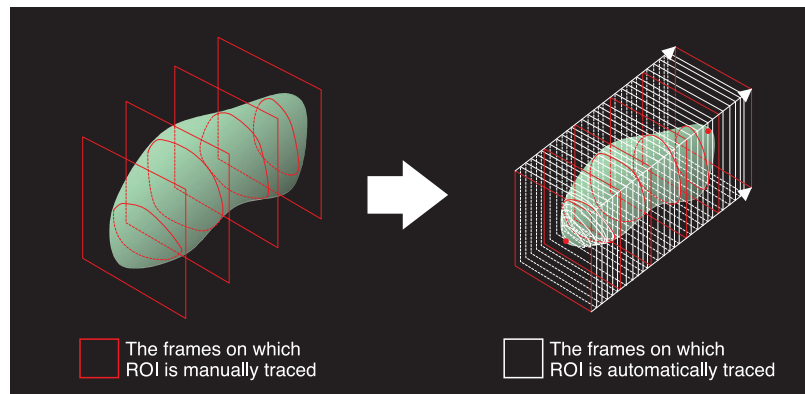
Gall bladder

Traced Volume Measurement (TVM)

Only by tracing the region of interest (ROI) on several images, the morphing technology automatically delineates boundary of the ROI on in-between frames. The system constructs a 3D image and instantly calculates the volume. This technique is useful for 3D volume measurement of a tissue having a vague boundary.



Courtesy of
Prof. WANG Yi, Huashan Hospital,
Fudan University, Shanghai, China



The frames on which
ROI is manually traced

The frames on which
ROI is automatically traced

Contrast Harmonic Echo (CHE)

The system supports a full range of contrast agents of high through to medium and low acoustic pressures.

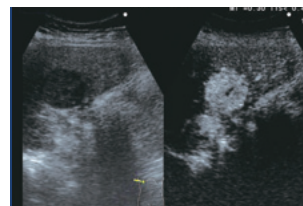


Contrast enhanced image using
SonoVue®

Courtesy of
Prof. Fabrizio Calliade, Radiology Department,
Policlinico San Matteo, University of Pavia, Italy

Capture Mode (CHE)

Narrow blood vessels
are depicted with good
continuity.

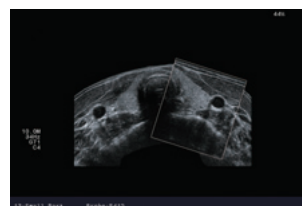


Dual Dynamic Monitor (DDM) mode

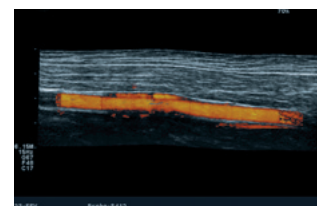
The fundamental monitor
image and the contrast
image are simultaneously
displayed in real time.

Extended Field of View (FFV)

By gradually moving the probe, a series of images are stitched together to show one continuous image which is wider than scanning width of the probe.



EFV image (cervical region)



Color EFV image (Lower extremity)

Abundant optional probes

As many as 50 types of optional probes, including those for routine examination and specialty use, are available.

- General abdomen
- Transvaginal
- Transrectal
- Intraoperative
- Small parts
- Biopsy
- Cardiology
- Transesophageal
- Laparoscopic
- Endoscopic ultrasound



Laparoscopic probe



Intercostal biopsy



Intraoperative (finger-grip type)



Bi-plane trans-rectal probe



Abdominal biopsy



Intraoperative (finger-grip type)

Endoscopic Ultrasound (Manufactured by Olympus Medical Systems)

● Convex scanning bronchofibervideoscope

Specifically designed for real-time endobronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA). With high resolution image quality and high sensitivity Color Doppler, the system allows for safer and more accurate biopsy in the mediastinal and hilar lymph nodes for the diagnosis and staging of lung cancer.



● Radial scanning scope

The radial scanning scope covers a wide 360-degree ultrasound scanning range and supports early detection and staging of diseases. This system is equipped with Color Doppler function that is useful for differentiating blood vessels from lymph nodes by displaying moving objects with color. This function also enables easier orientation in the pancreatobiliary region.



● Convex scanning scope

The convex scanning scopes are designed mainly for endoscopic ultrasound-guided fine needle aspiration. A wide 180-degree ultrasound scanning range and Color Doppler function enable differentiation between blood vessels and lymph nodes and ensure comprehensive imaging of all structures surrounding the region of interest.



Notes: The above endoscopes are not marked in some countries and areas. Marketable models are different from the above in some countries and areas.

In Pursuit of Friendliness to User, Patient and Enviroment

User-friendly universal design

- User-customizable panel switches
- Frequently-used keys are arranged around the trackball.
- Images can be easily frozen thanks to the integration of the gain knob and freeze switch.
- The Flow, PW and M-mode control and gain features can be selected with the use of a single control.
- Menu items can be arranged to individual likings on the large (10.4 inches) LCD touch panel.
- Virtual keyboard for making entries via the touch panel
- Retractable keyboard stored under the operation panel



The document tray, convenient for holding clinical charts and other documents, can be mounted in place of the standard keyboard.

The small and lightweight body is easy to move

The unit is equipped with four swivel casters for turning in a small radius. The unit is easy to move from examination room to the patient's bed side in the ward, CCU, ICU and operating theater.

Measuring only 49cm wide x 79cm deep, the unit fits in a limited space.

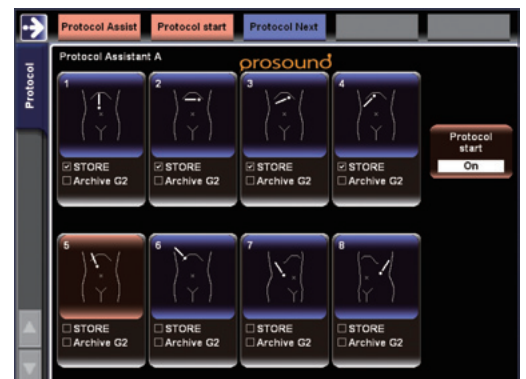


Protocol Assistant

For smoother examination with no missing recorded images!

Smooth examinations are performed according to the pre-registered protocol (procedures). By using the check function, it is possible to avoid forgetting to capture and/or measure images.

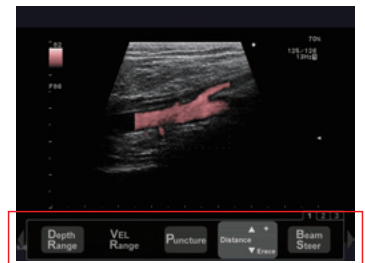
- Parts to be examined are registered with body marks and annotations.
- Measurement can also be registered as necessary.
- Registered protocols are displayed on the touch panel, enabling the user to check the progress of examination at any time.
- The acquired (recorded) sections are check-marked.
- A message appears if the user attempts to end the examination before completing all the registered procedures.



Remote Controller

Compact and Lightweight, Simple to Use, yet Multifunctional

- The main body of the remote controller is compact and light enough to fit easily in your breast pocket (40×90×10 mm thick; about 50 g). It comes with a neck strap.
- As the menu for the remote controller is displayed on the main screen, the controller can be manipulated while viewing images.
- The controller can control many functions including display mode switching, image adjustment, image freezing and various measurements.
- Can be used in the operating theater by placing it in a sterilized bag.



Function menu for remote controller



(Nearly the actual size)





Diagnostic Ultrasound System MODEL: PROSOUND α7



ALOKA-An Environmentally Friendly Company

- The specifications, shape and color of this product are subject to change without notice.
- The standard components and optional items vary depending on the country.



We strive to provide quality products and services for our customers.

We operate with regard for the environment.

ALOKA CO.,LTD.

6-22-1, Mure, Mitaka-shi, Tokyo, 181-8622 Japan
Telephone : +81 422 45 6049 Facsimile : +81 422 45 4058
www.aloka.com

