prosound α10

As of December 2006, Aloka was the first company to reach a significant milestone in producing 200,000 diagnostic ultrasound systems.
We will continue to contribute to human health through our development of innovative and user-friendly systems.

- The specifications, shape and color of this product are subject to change without prior notice.
- Some models may not be available in certain countries.

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

We operate with regard for the environment.

We care, Ultrasound@Aloka.

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

Printed in Japan 2007-06 E201-3 ⑦(K)

ALOKA
Science & Humanity

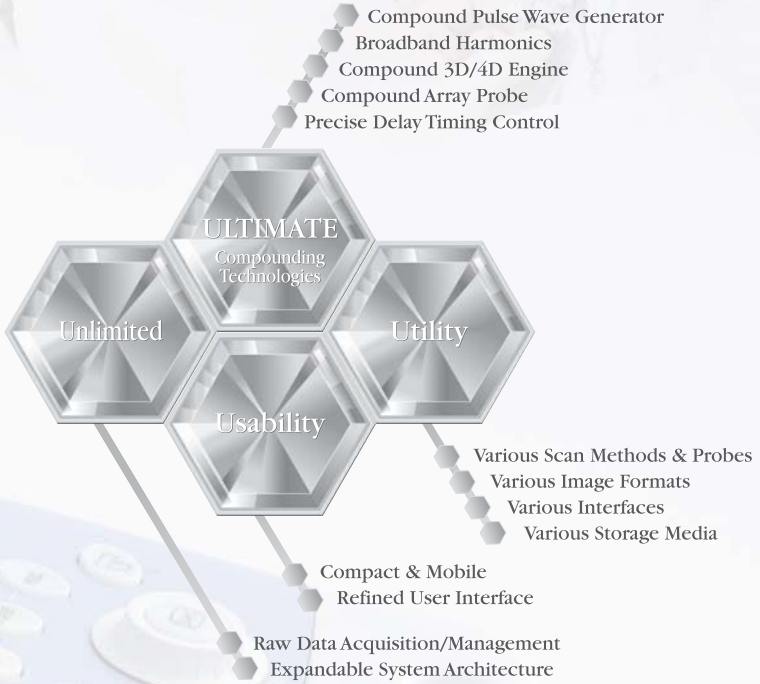
Explore Deeper, in Even More Detail, with More Usability

Aloka ProSound α10 is a boon for the new age of ultrasound diagnosis, offering outstanding usability. It enables more efficient routine diagnosis while boasting high-level performance capabilities comparable to those employed for research purposes. Doctors seeking significantly enhanced diagnostic accuracy can obtain the most precise information possible, while hard-pressed sonographers can handle examinations in a timely, efficient manner.

ProSound α10 features a Compound Pulse Wave Generator (CPWG) that allows ultrasound pulse waveforms to be organized and transmitted to fit a variety of conditions. CPWG functions are the basis for intelligent Broadband Harmonics, which provides greater spatial resolution as well as increased penetration. Coupled with multiple functions for improving image quality, the α10 facilitates quick diagnosis with confidence.

The α10 is highly adaptable to different user interfaces and diverse external IT environments, enhancing your diagnostic and management efficiencies. Patients spend less time awaiting diagnosis while you increase productivity.

ProSound α10 – constantly improving to remain in the vanguard of ultrasound diagnosis.



Ultimate Compounding Technologies

Dedicated to enhanced image quality
to ensure accurate and efficient diagnosis and greater patient satisfaction.

Broadband Harmonics by Compound Impulse Transmission

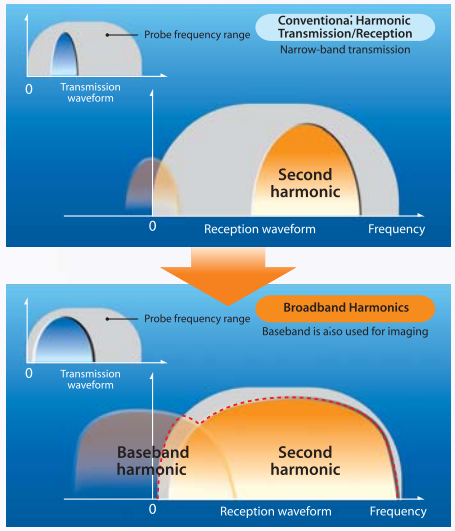
Compound Pulse Wave Generator (CPWG)

ProSound α10 incorporates a Compound Pulse Wave Generator designed to transmit pre-programmed waveforms. It produces highly efficient, high-quality beams optimized for each mode of operation and probe while also enabling highly sensitive transmission.

Compound Impulse Transmission

Aloka uses the Compound Pulse Wave Generator capabilities to create a Compound Impulse waveform* that allows for broadband transmission/reception in harmonic imaging. The result: higher penetration and greater axial resolution. In addition to the primary benefits of harmonics—the reduction of side lobes and multiple echoes—Broadband Harmonics, based on Compound Impulse transmission, offers significantly enhanced sensitivity and axial resolution for an unprecedented level of detail in the entire image.

*Patent pending



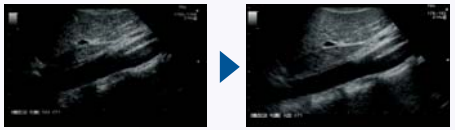
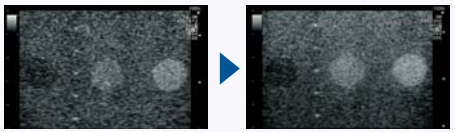


Image by conventional method　　Image by Broadband Harmonics



Conventional method　　Broadband Harmonics

Comparison by using a phantom

● HST+ Probes
maximize the α10's imaging performance

Transducers in the HST+ series consist of materials with high energy-conversion efficiency, making it possible to achieve greater uniform sensitivity from shallow to deep areas.

● Compound Array Probe
features thinner image slices

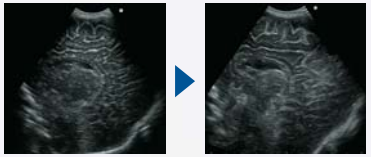
In addition to acoustic lens focusing, the Compound Array probe enables electronic control of the transmitted ultrasound beam in the elevation direction. It provides images with thinner and more uniform slice thickness along the entire depth.

● Precise Delay Timing Control
offers outstanding beam characteristics

α10 controls beam transmission/reception timing with a degree of precision four to eight times greater than conventional timing control. The reduction of side lobes significantly improves the S/N ratio of the overall image, realizing enhanced contrast and spatial resolutions.

● Adaptive Image Processing (AIP)
for speckle reduction

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

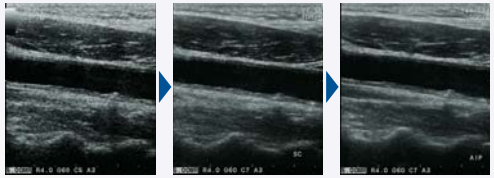


OFF　　ON

A:P applied images

● Spatial Compound Scan

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.



OFF　　Spatial Compound Scan : On　　Spatial Compound Scan +A:P : ON

Ultimate Imaging Capability

Abdomen

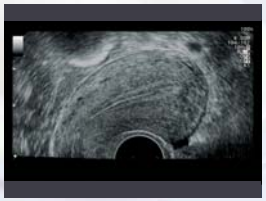
FNH (Focal nodular hyperplasia)
Radial blood flow detected with high sensitivity.

HCC (Hepatocellular carcinoma)
A distinct tumor plug is seen in the portal vein.

Liver cirrhosis
Marked ascites accumulation.

Ascites
Small intestine floating in ascites.

OB/GYN



Uterus
Normal uterus depicted with a transvaginal probe.

Fetal profile (normal)
24 weeks of gestation depicted with Real-time 3D (4D).

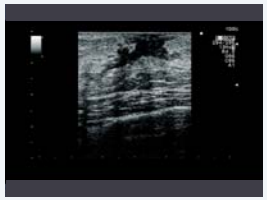
Even small abnormalities can be identified.

Fetal profile (normal)

Small parts

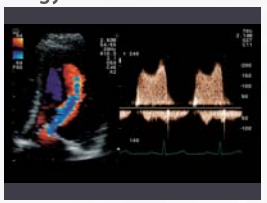
Microcalcification is clearly detected.

Thyroid tumor
Minute changes in tumor parenchyma are clearly detected.



Ductal carcinoma
Mammary duct ectasia with solid echo pattern.

Cardiology

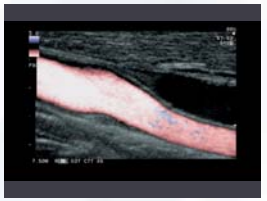


MS (Mitral Stenosis)
Highly sensitive Flow image and CW Doppler waveform with sharp edge are detected.

LVH with pericardial effusion
Myocardial tissue is depicted with high resolution.

High frame rate is available even under routine conditions.

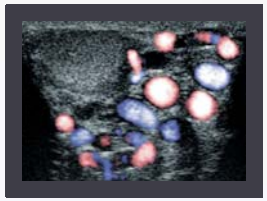
Vascular



Carotid artery
The high-resolution D-*e*FLOW can display the periphery of the plaque without overlapping with the blood flow image.

Urology

Testicle
DDD (Dual Dynamic Display) can display both gray-scale B-mode and *e*FLOW images simultaneously in real time.

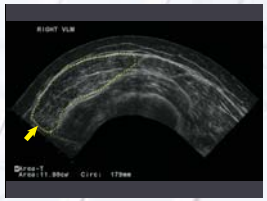


Varicocele
Blood flow is clearly depicted by *e*FLOW.

Extremities

Baker's cyst

Radial artery
Meandering radial artery pressed by the ganglion is clearly depicted by D-*e*FLOW.



Femur
Image using High Definition Extended Field of View (HD-EFV). Gradual movement of the probe allows a large area to be shown in a single image. Measurement is also possible.

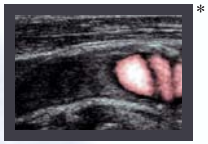
User-Friendly Functions

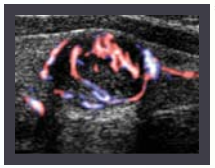
For more precise and comprehensive examinations

Directional *e*FLOW (D-*e*FLOW)

displays high-resolution blood flow with directional information

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





*Courtesy of Dr. Lemasle, Le Chesnay, France

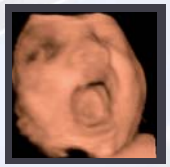
HD-EFV (High Definition Extended Field of View)

offers a wider view and higher diagnostic efficiency

A series of images are joined together into an image of a larger area. This extended view helps you grasp the positional relationship between different organs, and our unique algorithm rapidly produces a seamless image with ease. Measurement is also possible.

Compound 3D/4D Engine

supports superb real-time 3D (4D) monitoring



Fetus

The trans-abdominal and transvaginal 4D probes are compact and lightweight.
A single probe supports 2D, color flow, Doppler and real-time 3D (4D) monitoring.

Gall bladder

3D Automated Volume Measurement

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.

Follicle

Inversion Mode

This mode allows 3D black-and-white images to be inverted. It is especially useful for depicting cystic structures.

Comprehensive Cardiovascular Examination Tool

Unmatched quantitative analysis makes ProSound α10 the right tool for any comprehensive cardiovascular examination, be it for the purpose of preventive medicine or diagnosis and treatment.

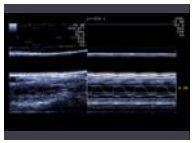
● Early detection of atherosclerosis and global analysis of the cardiovascular system

*e*TRACKING (Echo Tracking)

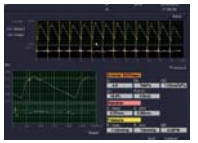
*e*TRACKING is designed to measure, automatically and in real time, changes in vessel diameter. The tracking gate follows movement of the vessel wall caused by pulsation with a precision as high as 0.01mm.

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.



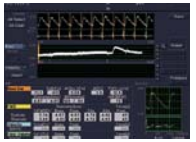
Measurement screen



Analysis screen

FMD (Flow Mediated Dilatation)

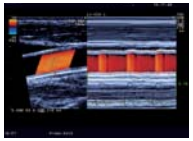
FMD analysis is known as an effective means for evaluating a blood vessel's endothelial function non-invasively. FMD analysis will make a significant contribution to the early detection of atherosclerosis. *e*TRACKING-based FMD analysis is capable of highly precise measurements. The system can continually record and graphically plot the entire process, automatically computing all relevant parameters.



FMD analysis

WI (Wave Intensity)

The heart and the arterial system are acting, constantly interfering with each other through forward traveling waves and reflected waves. WI is calculated based on changes in blood pressure and blood flow speed obtained at an arbitrary point in a circulatory system. WI is a new indicator of blood flow dynamics, which is expected to help pave the way for analysis of the interference between the heart and the arterial system. The analysis comprises of constriction and dilatation characteristics, influence of reflected waves from peripherals, and an index related to time.



● Evaluation of Ischemic Cascade

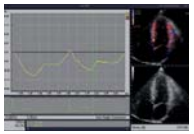
A-SMA (Automated Segmental Motion Analysis)

A-SMA employs a unique algorithm to automatically trace the endocardium. The cardiac cavity is divided into 2, 4, or 6 segments and cardiac wall motion is quantified by the change in the cross-sectional area of each segment. A very high frame rate of analysis – exceeding 90 frames/second – allows you to observe detailed motion of the cardiac muscle.

Histogram (systole)

Strain/Strain rate

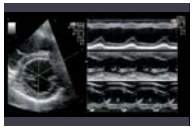
Strain analysis is used to examine local cardiac function by measuring the elongation and shrinkage of the regional myocardium between two designated points. Strain analysis is attracting attention since it is less affected by tethering and translation.



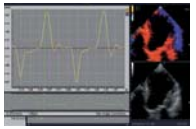
Strain analysis

● Contribution to CRT

Asynchrony can be evaluated with greater precision using real-time FAM (Free Angular M-mode), which compares wall motion at multiple locations simultaneously, and TDI (Tissue Doppler Imaging) analysis, which lets the ROI automatically track regional myocardial motion for precise analysis.



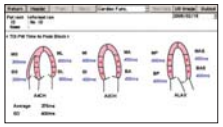
FAM: Normal case



TDI analysis: A case of asynchrony

Asynchrony Measurement

Thanks to its high frame rate, ProSound α10 can perform high-precision temporal analysis in M-mode, D-mode and TDI. It offers various parameters necessary for evaluation of atrioventricular, inter-ventricular and intra-ventricular asynchrony as one Study.



Asynchrony measurement report

ProSound Usability

For a comfortable operation and working environment

Ergonomic Design

Select the monitor you want: CRT or LCD.

- The 17-inch high-resolution SVGA non-interlaced CRT monitor delivers flicker-free images, reducing eyestrain.
- The 19-inch LCD monitor offers high resolution and high gradation and is tuned for ultrasonic diagnosis. It comes equipped with a low-reflection, hard-coat filter and swivels and tilts easily to facilitate examination.
- Control panel can be adjusted for swivel and height.
- Console is the most compact and lightweight in its class, making it easy to transport within the hospital. Excellent mobility is provided by four casters.

Refined User Interface

facilitates smoother operation

- Menus displayed on the touch panel can be arranged as desired.
- Switches on the panel can be customized to meet your specific application needs.
- Gain control and freeze switch are united into one, so you can freeze the image without looking away from the images on the monitor.
- Integrated gain control/freeze switch means you can freeze an image with a simple touch without having to take your eyes off the screen.
- Keyboard keys are large and easy to manipulate. Placed under the panel when not in use, the retractable keyboard is unobtrusive but easy to access.

Expandable System Architecture

- High-level network compatibility reinforces examination efficiency

  Reading of patient information (worklist acquisition), notification of the state of examination (MPPS), forwarding of images, and forwarding of the examination report (Structured Report (SR)-compatible*) – all these procedures can be performed using the DICOM standard.

  * SR-compatible: OB/GYN, Cardiovascular

- Flexible system architecture with consideration given to future expandability
- Raw data acquisition/management
- Compatible with the log-in/password function designed to prevent unauthorized personnel from operating or accessing the system.
- Capable of video output of visual images only after patient IDs and names have been deleted. (Teaching File function)
- Compatibility with diverse formats and media

Various Scan Methods

Our diversified lineup of specialty probes is user and patient friendly.

Choose from our complete lineup of specialty probes to meet your particular application. Each probe is designed to be compact and lightweight for easy operation while providing excellent performance.

Convex Array

Linear Array

Phased Array Sector

Mechanical Radial

Micro convex

Transrectal bi-plane

Microsurgery

Transesophageal probes

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

Ultrasonic Gastrovideoscopes (Manufactured by Olympus Medical Systems)

● Electronic radial scanning scope

The electronic radial scanning scope covers a wide 360 degrees ultrasound scanning range and supports early detection and staging of the 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.

● Electronic convex scanning scope

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

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