

ADVANTEST[®]

Photoacoustic Microscope

Hadatomo[™] Z

WEL5200

Noninvasive 3D Imaging of Blood Vessels in the Dermis



The Hadatomo™ Z simultaneously images the oxygen saturation of blood vessels with two wavelengths of optical ultrasound, and images the skin texture, pores, and skin structures such as sebaceous glands with ultrasound. By more clearly imaging blood vessels to a depth of 3 mm with photoacoustic and ultrasound technology, the Hadatomo™ Z contributes to 3D image analysis in fields including cosmetics and beauty (vascular development and circulation improvement research) and medicine (monitoring of blood vessels generation in skin cancer patients).

Features

Multi-modality Imaging

Ultrasound that visualizes the skin structure based on the differences in tissue hardness, and optical ultrasound, which selectively images melanin and blood vessels based on their absorption characteristics, are integrated into one system.

Quasi-real-time imaging

The photoacoustic wave images and the ultrasonic wave images are measured simultaneously, with a minimum measurement time of 70 seconds (Range: 6 mm x 6 mm x 3 mm (depth)) and maximum time of 420 seconds (Range: 9 mm x 9 mm x 3 mm (depth)).

High-resolution images obtained with easy operation

An ultrasonic sensor developed especially for this system provides a high-resolution cross-section view. Focus points can be easily located by observing the cross-section.

Flexible design with easy operation and portability

The compactly designed system, equipped with a measurement unit mounted on a flexible arm, is installed on a system unit with caster wheels, easy to set up to measure various parts of the body.

Label-free

Applying a small amount of water to the measurement area is enough for measurement.

Non-invasive measurement is possible without any contrast agent.

Acquires data for 3-dimensional imaging

Measurement data are displayed as 2-dimensional cross-section images in real-time, and acquisition of 3-dimensional data images is possible. 3-dimensional image analysis is possible with customer-provided rendering software.

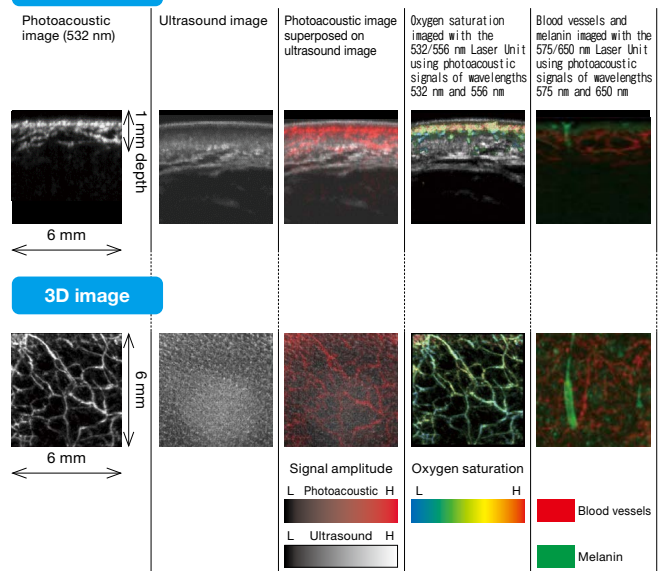
2 different laser frequency combinations available

Choose the 532/556nm laser unit or the 575/650nm laser unit, depending on what is to be measured.

(Cover shows Hadatomo™ Z with 575/650 nm Laser Unit)

WEL5200 Imaging Examples (Sample: forearm)

2D tomography



Specifications

Measurement	2D (Tomography), 3D	
Sampling frequency	500 MHz	
Measurement area (x, y)	(1) 6 x 6 mm (2) 9 x 9 mm	
Measurement depth (z)	3 mm (designated signal acquisition range)	
Scanning step	15 μm / 30 μm	
Measurement time (15 μm)	(1) 210 s (2) 420 s	
Measurement time (30 μm)	(1) 70 s (2) 140 s	
Light Source*	(A) 532/556 nm Laser Unit (B) 575/650 nm Laser Unit	
Wavelength	532 nm, 556 nm	575 nm, 650 nm
Horizontal image display	15 μm	
Axial image display	12 μm (depending on ultrasound velocity)	
Pulse energy (averaged value)	Below 16 μJ/pulse	Below 18 μJ/pulse (575 nm) Below 14 μJ/pulse (650 nm)
Pulse width	< 10 ns	
Repetition rate	1000 Hz (per 1 wavelength)	
Dimensions	Approx. 610 (W) x 730 (D) x 1,400 (H)	
Weight	< 135 kg	

* (A) or (B) laser unit can be selected as the light source.

- This product is a laser instrument with class 3B lasers.
- This product is a scientific instrument. It is not designed to be used as a medical instrument.
- This product does not include a PC or USB 3.0 cable.
 - USB 3.0 cable required: less than 2.5 m, USB 3.0 Type-B (system side)
 - PC specifications required: Windows 10, 64 bit (CPU Core i7-3770k or better), memory of 16 GB or more, free disk space of 1.5 GB or more, USB-IF (USB 3.0, 1 port)
- The specifications and images in this catalog are subject to change without prior notice.

ADVANTEST®

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