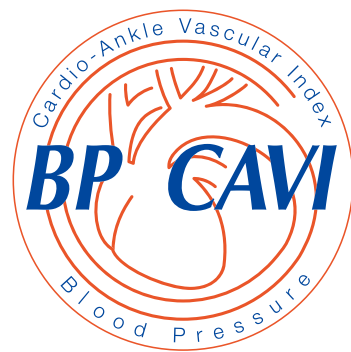


Vascular Screening Device

VaSera VS-2000 Series

New
Patient Management
Partner



FUKUDA DENSHI reserves the right to change specifications without notice.

FUKUDA DENSHI CO., LTD.
3-39-4 Hongo, Bunkyo-ku, Tokyo, Japan
Tel: +81-3-5684-1455 Fax: +81-3-3814-1222
<https://fukuda.com/>

Distributed by:

The Future of Cardiovascular, Blood Pressure and Atherosclerosis Management.

Blood pressure measurement is no longer a daily practice.

Step up the caliber of your patient evaluations.

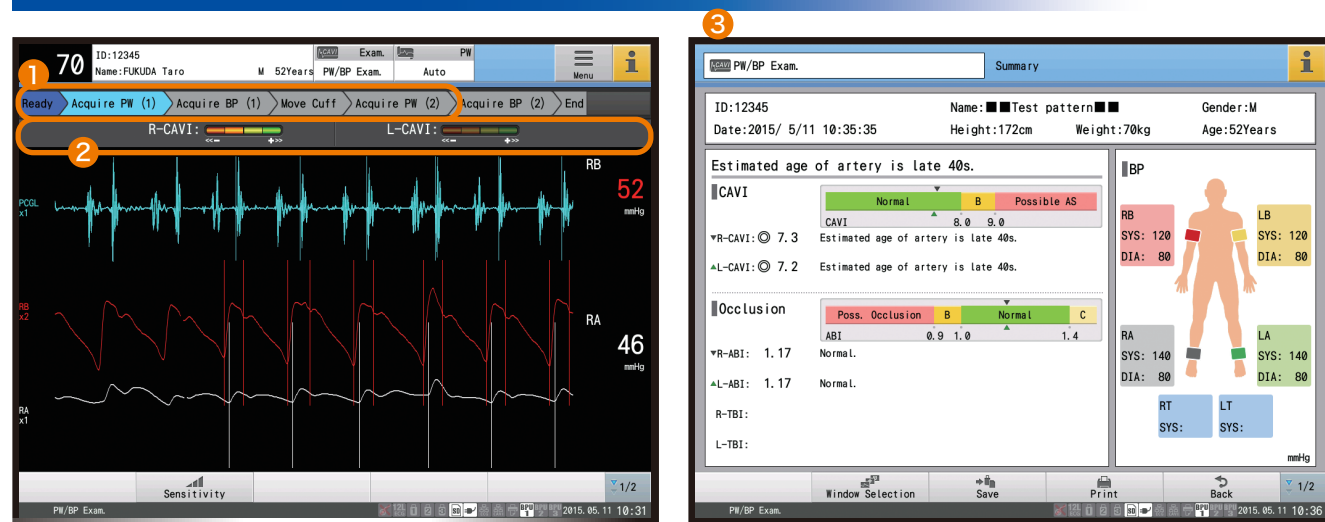
Clinical quality measurement of Blood pressure and arterial hemodynamics.

By measuring arterial stiffness, you can know your patient's "Vascular Age".

Simple examination, easy to use

As easy as pressing a button, VaSera VS-2000 performs a suite of cardiovascular tests, and works as your new patient management partner.

Easy-to-read screens



Better flexibility

1

New design which can be used on a desk.



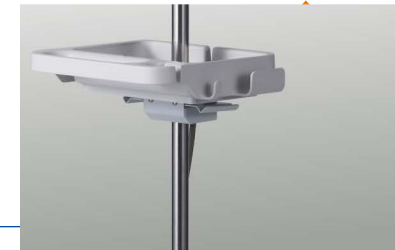
2

Smooth operation with capacitive touch screen



3

Height of shelf and monitor can be adjusted



4

More functions are available by adding modular options.



Fits in your office

Total weight approx. 14Kg (31lbs)

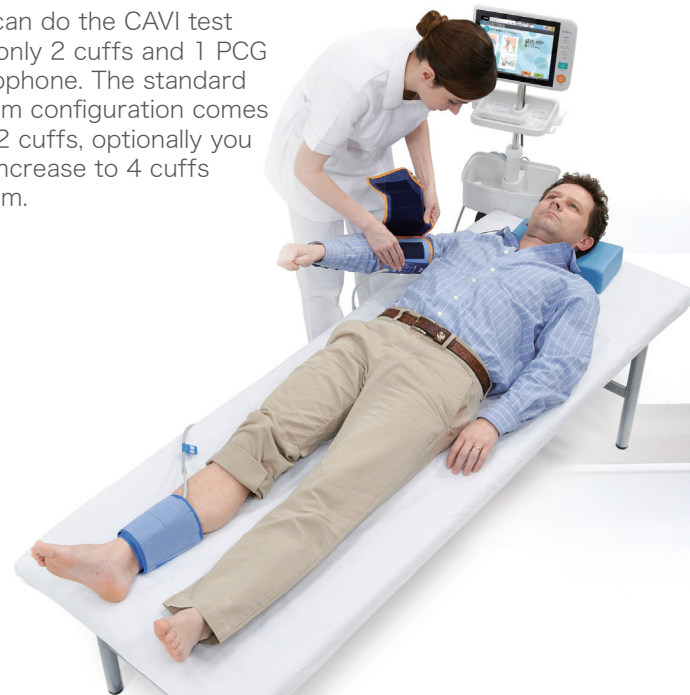
Depth 487mm (1.6feet)

Width 509mm (1.67feet)

Adjustable height 1105 - 1305 mm (3.63 - 4.28 feet)

Shortened examination time

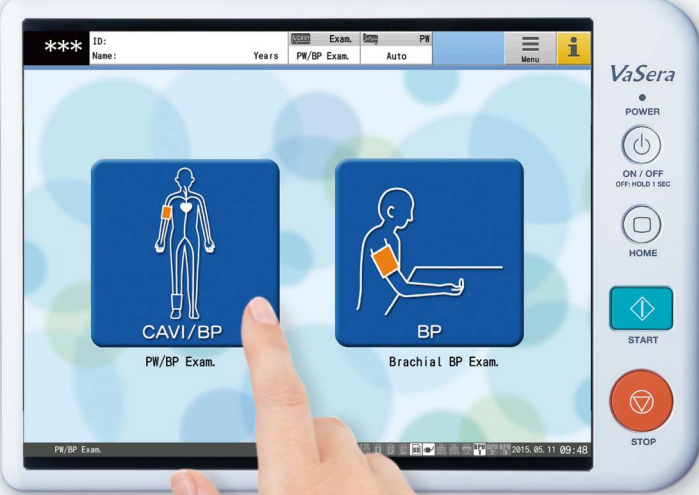
You can do the CAVI test with only 2 cuffs and 1 PCG microphone. The standard system configuration comes with 2 cuffs, optionally you can increase to 4 cuffs system.



Greater Ease-of-Use with the On-Screen Guides

Even a first time user is able to perform an examination thanks to the on-screen guide.
Step by step instructions guide you from the patient registration up to the end of the examination.

Display Unit



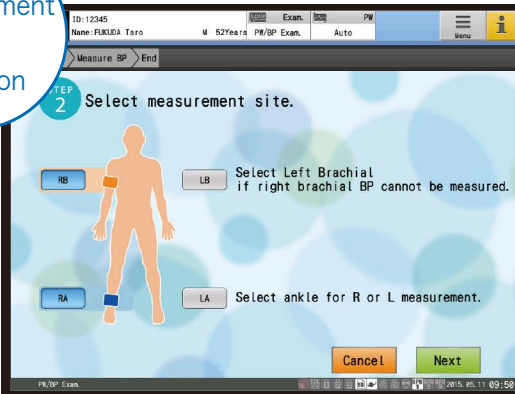
A hand is shown touching the 'BP' (Brachial BP Exam) option on the device screen.

Patient Information section



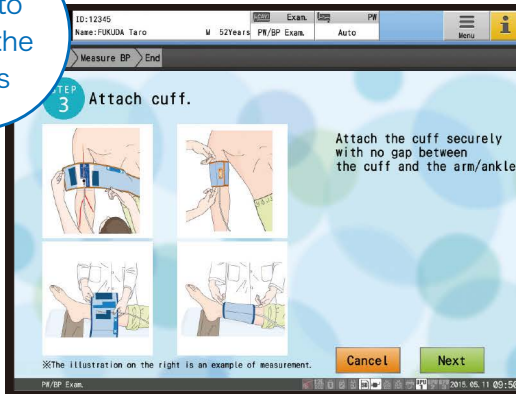
Enter patient information. Fields for ID, Age, Gender, Name, Height, and Weight. A note states: 'Age (Birth Date), sex and height are required items. Please enter these correctly.'

Measurement site selection



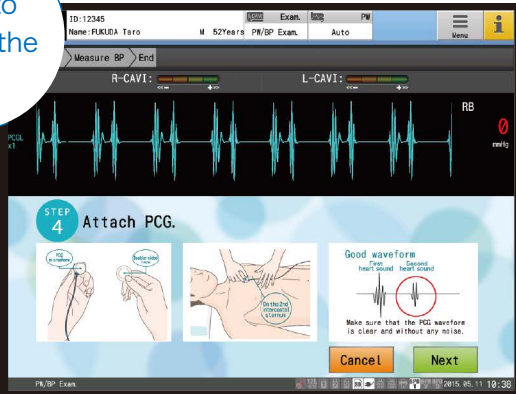
Select measurement site. Options: RB (Right Brachial), LB (Left Brachial), RA (Right Ankle), LA (Left Ankle). Instructions: 'Select Left Brachial if right brachial BP cannot be measured.' and 'Select ankle for R or L measurement.'

How to wrap the cuffs



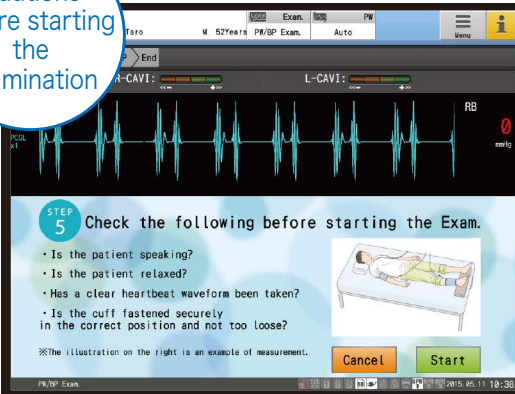
Attach cuff. Illustrations show how to attach the cuff to the arm and ankle. Text: 'Attach the cuff securely with no gap between the cuff and the arm/ankle.'

How to attach the PCG



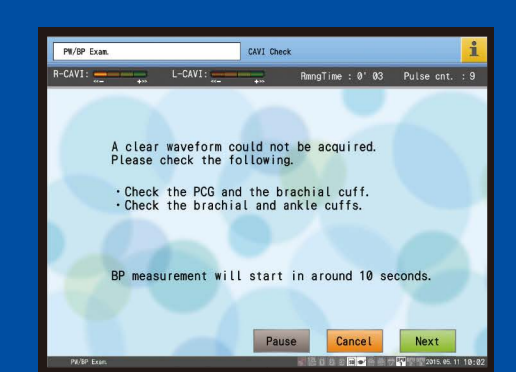
Attach PCG. Illustrations show how to attach the PCG sensor to the chest. A note states: 'Good waveform' and 'Make sure that the PCG waveform is clear and without any noise.'

Cautions before starting the examination



Check the following before starting the Exam. Checklist: 'Is the patient speaking?', 'Is the patient relaxed?', 'Has a clear heartbeat been taken?', 'Is the cuff fastened securely in the correct position and not too loose?'

If VS-2000 is not able to successfully take a measurement, then a message will appear in the middle of the screen.



A clear waveform could not be acquired. Please check the following. Check the PCG and the brachial cuff. Check the brachial and ankle cuffs. BP measurement will start in around 10 seconds.

※ It is also possible to disable the on-screen guide and switch to standard mode.

Blood Pressure Examination

The examination conforms with the guidelines of AHA and ESH
When building an average from multiple measurements, you can select the measurements of best quality.

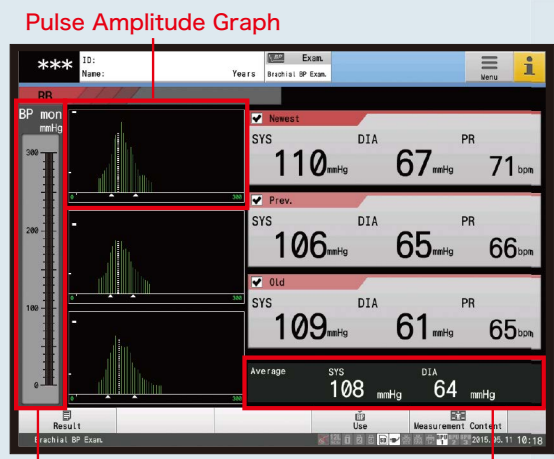


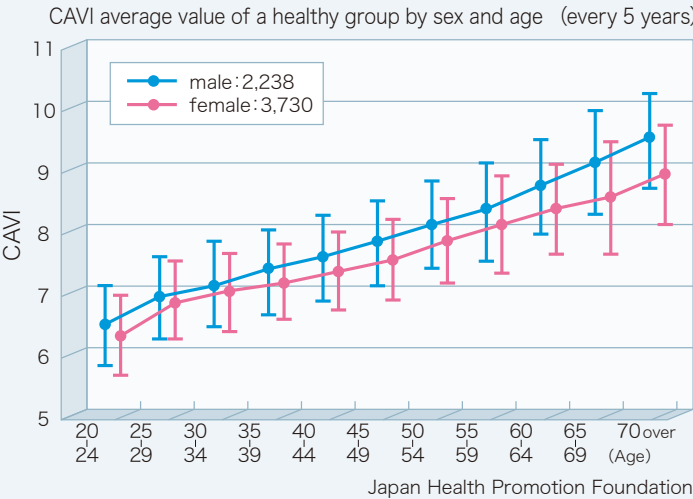
Image of a mercury blood pressure meter Average value

Multiple measurements with average value.

CAVI Examination

CAVI Cardio-Ankle Vascular Index

CAVI reflects the arterial stiffness from the heart to the ankle. Therefore it is a great indicator of Atherosclerosis. Also, a major advantage is its lesser dependence upon blood pressure changes at measurement time.



CAVI reference value

CAVI<8.0	Normal range
8.0≤CAVI<9.0	Borderline range
9.0≤CAVI	Possible atherosclerosis

Display of the vascular age

Using the reference graph of healthy subjects as an indicator, it is possible to reflect the age of the arteries.
Some versions of VaSera come with a vascular age graph.

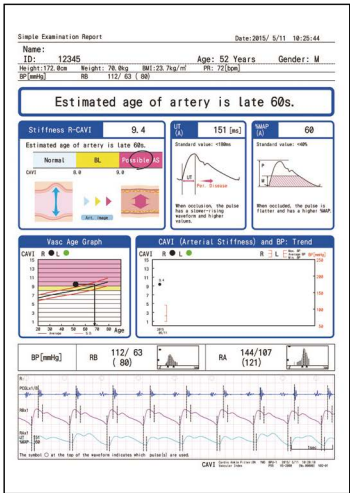
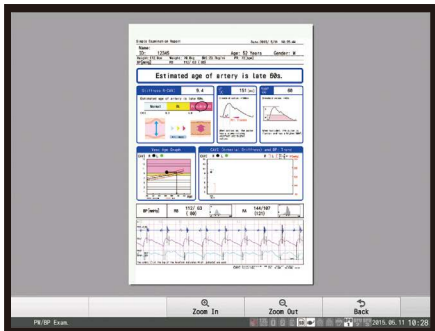
Product Configurations with added options

Standard	Option	Examination types			
		CAVI	ABI	TBI	ECG
VS-2000 + Stand for VS-2000 + Four-Limb Blood Pressure Package + PCG Microphone + Power Cable + NIBP/Pulse Wave Unit 	NIBP/Pulse Wave Unit + Toe Blood Pressure Package 			●	—
	ECG Amplifier Unit + ECG Software Package 			—	●
	NIBP/Pulse Wave Unit + Toe Blood Pressure Package + ECG Amplifier Unit + ECG Software Package 	●	●	●	●
VS-2000 + Stand for VS-2000 + NIBP Cuffx2 + Air Hosex2 + PCG Microphone + Power Cable		○ ※1	○ ※2	—	—

※1···In a simple examination mode, the one-sided CAVI can be measured. In the standard examination mode, the CAVI can be measured by exchanging cuffs.
※2···In a simple examination mode, the ABI cannot be measured. In the standard examination mode, the ABI can be measured one side at a time.

Preview function

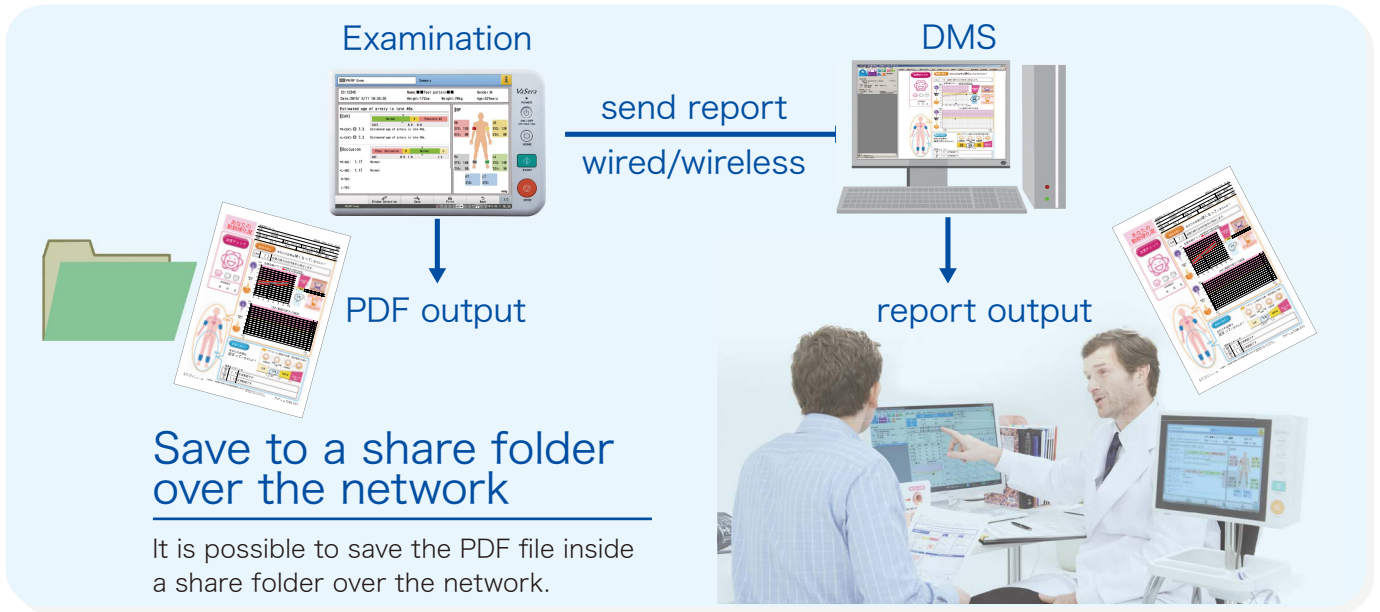
Before printing the report, you can preview it on a screen on the VS-2000.



Simple examination report

Network Integration

The VS-2000 comes with a standard LAN port and can communicate with a PC (not available in simple mode). VaSera enables easy management of its patient database. Additional software is also available for the review and handling of patient data.



Specifications

Display	Type	Liquid crystal display (LCD) with back-lighting
	Resolution	1024 dots (horizontal) x 768 dots (vertical)
PCG wave	Frequency characteristic	L filter: 50 Hz (-6 dB/oct) PWV filter: 165 - 280Hz within -3 dB
Blood pressure and pulse wave examination	Maximum measuring range	0 to 300mmHg
	Scale Interval	1mmHg
	Pressure accuracy	+/- 3mmHg
	Pressure detection	Semiconductor pressure sensor
	Zero balancing	Automatic balancing
	Measurement method	Oscillometric method
	Measurement range	20 to 280mmHg
	Inflation	Automatic inflation by pump
	Deflation	Automatic deflation by electromagnetic valve
	Safety mechanism	Activates when 1) 330mmHg or above, or 2) 10mmHg or above lasts for 130sec or longer
	Leads	Standard 12 leads
	Lead selector	Error: within 5%
ECG examination	Skew between leads	0 sec
	Measurable parameters	Heart rate, R-R time, P-R time, QRS time, QT time, QTcB electrical axis, SV1, RV5(6), R+S, QTcF
	Standard Sensitivity	10mm/mV
	Sensitivity Selection	1/4, 1/2, 1, 2, or automatic
	Differential and common-mode offset voltage (Electrode-skin voltage)	±600 mV and above
	Recovery Time	Within 1 second
	tolerable overload voltage	1 Vp-v, 10 seconds
	Frequency response	0.05 to 250Hz
	Sine wave characteristics	0.05 to 150 Hz, within -3dB
	Low frequency characteristics (Time constant)	3.2 sec. and above
	Common-mode signal suppression	103 dB and above (2 mm [p-v] and below at sensitivity level 1)
	Input impedance	2.5 MΩ and above
	Noise level	20μV (p-v) and below (input conversion)
	High frequency response	0.67Hz to 40Hz sinusoidal: ±10% 40Hz to 100Hz sinusoidal: +10%/-30% 100Hz to 150Hz sinusoidal: +10%/-30% 150Hz to 500Hz sinusoidal: +10%/-100% ≤1Hz triangular with 20ms base width: +0%/-10%
	Impulse response	For a 0.3 mV x s (3 mV for 100 ms) impulse input, the slope of the response must not exceed 0.30 mV/s following the end of the impulse.
	Calibrated voltage	1mV ±0.01mV or lower
	A/D conversion	24-bit
	Sampling rate	8000/Sec/ch
	HR detection range/accuracy	20 bpm to 300 bpm, Error: ±2 or less
	Patient data	ID number, age, sex, height, weight, etc.
	Filters	AC filter: -20dB or less at 50/60Hz Muscle filter: -3dB (-6dB/oct) or less at 25/35Hz Drift filter: -3dB (-12dB/oct) or less at 0.25Hz/0.5Hz

SD card	Compatible with SD Card Specification 2.0, 1 port
LAN port	Conforms to IEEE802.3u 100BASE-TX (The cable must be within 50 m.)
USB port	Compatible with USB2.0 Full Speed, 3 ports
Safety Standard	IEC 60601-1:2005 + Am1:2012
Classification of protection against electric shock	CLASS I, INTERNALLY POWERED
Degree of protection against electrical shock	NIBP: Type CF applied part, defibrillation -proof applied part PCG input: Type CF applied part, defibrillation-proof applied part ECG input: Type CF applied part, defibrillation-proof applied part
Power Supply	AC 100 to 240V, 50/60 Hz, 80 VA DC11.1V (During battery operation)

Dimensions	MAIN Unit	W178mm x D181mm x H315mm +/-10%
	Display Unit	W297mm x D95.5mm x H210mm +/-10%
	NIBP/Pulse Wave Unit (BPU-100)	W90mm x D165mm x H43mm +/-10%
Weight	MAIN Unit	4.5kg +/- 20% (without Battery Pack)
	Display Unit	1.6kg +/- 20%
	NIBP/Pulse Wave Unit (BPU-100)	425g +/- 40g
Operating environment	Temperature	10 to 40°C
	Humidity	15 to 95% (non-condensing)
	Atmospheric Pressure	80 to 106 kPa
Storage environment	Temperature	-10 to +60°C
	Humidity	10 to 95% (absolute humidity in conditions below 40°C and 95%RH, excluding conditions with condensation)
	Atmospheric Pressure	80 to 106 kPa