

**Specifications**

**Measurements:**

Averages the digital volume pulse waveforms over a user defined time period (factory default of 10seconds) and will automatically increase the time when not enough 'valid' pulse waveforms have been identified. The number of valid pulses required is user defined. Automatically rejects wave forms with; low amplitude, variable pulse period e.g. ectopic beats, and when artefact or noise is present. Waveform is visible in real time during sample collection period. The points used in the calculations are marked on the waveform, when a 'spot-check' test is performed, as follows: first peak, systolic inflection point if present and second peak or inflection point if present.

*Calculates and displays:*

- Number of valid waveforms and total waveforms detected.
- Time from systolic inflection point (if present) or first peak to second peak or inflection point (PPT)
- Stiffness Index (SI) defined as the subjects height divided by PPT (only displayed if subjects height has been entered)
- Reflection Index (RI) defined as the height of the second peak or inflection point divided by the height of the first peak.
- Heart Rate

<b>Predicted Values:</b>	Normal SI range for subject age – Various depending on national preference Vascular age estimate
<b>Test Modes:</b>	'Spot-check' and automated x3 test protocol
<b>Tests Per Session:</b>	Up to 10 complete tests can be stored per measurement session
<b>Storage:</b>	>2000 tests including the waveform can be stored
<b>Transducer:</b>	Precision photoplethysmographic finger probe
<b>Display:</b>	Touch screen graphic colour LCD 240x160 pixels
<b>Power Supply:</b>	Input 100-240V 50-60Hz, Output DC 12v 2.5A
<b>Battery Pack:</b>	Rechargeable NIMH 8.4V 1000mA-hours
<b>Battery Life:</b>	4 hours or more on a full charge
<b>Dimensions:</b>	25.5 x 12.0 x 3.5cm. Transducer 2.0 x 2.0 x 6.0cm
<b>Weight:</b>	630g. Excluding any transducer
<b>Operating Temperature:</b>	0 to +40 C
<b>Operating Humidity:</b>	30% to 90% RH
<b>Storage Temperature:</b>	0 to +70 C
<b>Standards:</b>	Type B device, CE approved (Directive 93/42/EEC)
<b>Environment:</b>	Complies with directive EN60601-1-2 electromagnetic compatibility

The PulseTrace PCA 2 (Cat. No. PT8000) is part of an extensive range of respiratory and cardiovascular diagnostic products manufactured by Micro Medical Ltd.

Micro Medical Ltd pursues a policy of continuing improvement in design, production, and performance of its products; and reserves the right to vary details at any time without notice.

**Bibliography**

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**Cardiovascular monitoring at your finger tip**

- Arterial Stiffness
- Endothelial Function
- Vascular Tone



**PulseTrace PCA 2 delivers -**

- Accurate and noise free Digital (finger) Volume Pulse waveform analysis using a high fidelity photo-plethysmography with auto power adjustment
- Validated parameters
- Spot-check and automated x3 test protocol operating modes
- Non-operator dependant and fast
- Touch/colour display and hi-res printer
- Artefact and ectopic beats handling
- A quick & easy to use complete Pulse Contour Analysis solution



**Micro Medical Limited**

PO BOX 6, Rochester, Kent, ME1 2AZ, UK  
**Telephone 01634 893500**  
**Fax 01634 893600**  
**International +44 1634 893500**  
**Email micromedical@viasyshc.com**  
**www.micromedical.co.uk**



Local Representative:



“A man is as old as his artery”

Thomas Sydenham, a 17th century physician

This 'next generation' Micro Medical PulseTrace is designed for use in clinical practice, to aid early detection, treatment, and management of hypertension, coronary arterial disease, target organ damage and endothelial dysfunction.

Arterial Stiffness Measurement

The PulseTrace PCA 2 estimates large artery stiffness from the pulse waveform obtained at the finger (digital volume pulse: DVP) with an infra-red sensor (photo-plethysmography).

It is extremely easy to use, operator independent and is very well accepted as a routine measurement by the patient.

The speed at which the pulse travels along the arterial tree is directly related to arterial stiffness<sup>1-2</sup>.

Measuring the time it takes for the pulse waves to travel through the arterial system provides a simple but accurate way of measuring arterial stiffness. The shape of the volume waveform in the finger is directly related to the time it takes for the pulse waves to travel through the arterial tree<sup>3-4</sup>.

This very important observation is used by the Micro Medical PulseTrace and makes it a powerful noninvasive tool for the assessment of vascular changes.

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PulseTrace PCA 2 Cat. No. PT8000

- High definition colour touch-screen
- Fast, quiet printer with easy load paper
- Self contained and highly portable
- Battery/mains with 4hrs battery life
- Complete with all accessories in a sturdy case
- Normal range displayed for subjects age and vascular age estimate
- ‘Spot-check’ and automated x3 test protocol
- Body Mass Index calculation
- Direct connection to external HP printers\*
- Large 2000 test memory
- PC software for uploading, managing and printing results with customisable print out formats with ‘export’ utility

\* Compatible HP printers can be found on Micro Medical web site



Endothelial Function Measurement

The DVP waveform is also very sensitive to the vascular tone of the whole arterial tree<sup>3</sup>. PulseTrace PCA 2 automatically analyses the finger pulse to determine a measure of arterial stiffness and a measure of vascular tone. The change in the DVP waveform in response to an endothelial dependant vasodilator such as salbutamol (albuterol) can be used to assess endothelium function<sup>3, 10-13</sup>. Salbutamol can be administered using an inhaler making this a very simple test to perform in the clinic or at the bedside.

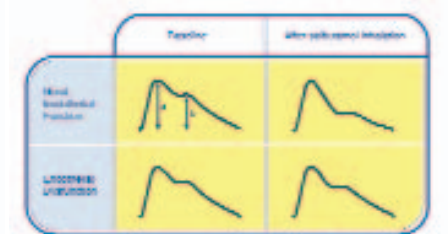


Figure 1. Effect of salbutamol inhalation on a subject with good endothelial function (top) and endothelial dysfunction (bottom). The reduction of RI in response to salbutamol is less in subjects with endothelial dysfunction.

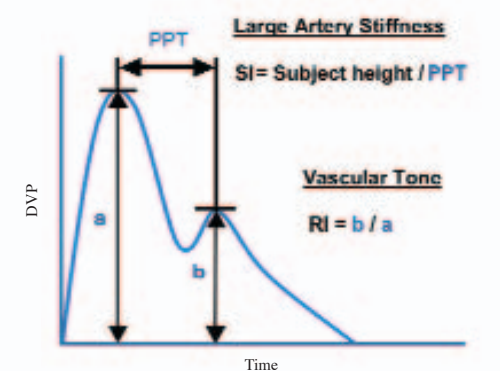


Figure 2. The DVP waveform is independent of local changes of the vasculature but determined by large artery stiffness (estimated by SI) and vascular tone (estimated by RI). SI is highly correlated with PWV, as shown below, and RI is determined by the systemic vascular tone<sup>3-5</sup>.

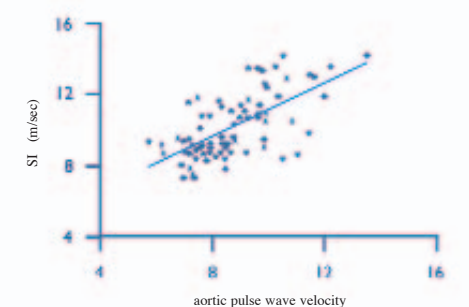


Figure 3. The large artery stiffness parameter SI, from the DVP waveform correlates with the 'gold standard' arterial stiffness parameter: aortic pulse wave velocity<sup>4</sup>.

The Clinical Value of Arterial Stiffness

- Arterial stiffness is an independent predictor of cardiovascular risk<sup>6-7</sup>.
- Arterial stiffness is a measure of target organ damage in untreated hypertension<sup>8</sup>
- Arterial stiffness is significantly associated with the presence of coronary artery calcium<sup>9</sup>



Large icon based main menu



Touch screen keyboard



On screen help