

Company background

Multi Frequency Vibrometry was developed by professor Göran Lundborg and Lars Dahlin at the department of hand surgery at Lund University in Sweden.

VibroSense Dynamics AB (publ.) develops, manufacturers and sells medical devices that support diagnosis of peripheral sensory neuropathy. The company was founded in 2005 with headquarters in Malmö, Sweden. Our customers are primary care, hospitals, diabetes clinics, occupational healthcare and research scientists.

VibroSense Meter® II, technical specifications

Measuring Device	
Size	(L x W x H) 40 x 27 x 16 cm
Total weight	4.8 kg
Operating temperature	0 – 50 °C
Power supply	Power adapter, 120 – 240 V AC , 85 W
Device Input Power	24V DC, 2.5 A
PC interface	USB
Psychophysical algorithm	Method of Limit, modified von Békésy up/down (QST)
Measurement compliance	ISO13091-1
Medical Device	Class I, IEC60601-1
EMC compatibility:	IEC/EN 60601-1-2 ed. 4
Frequencies	4 Hz – 500 Hz, sinusoidal
Amplitude	80 dB – 170 dB (0.01 – 316 m/s²)
Ramp speed	+/- 3 dB/s
Skin temp. accuracy	+/- 0.5 °C
Calibration	Self-calibration at start up. Calibration check is recommended every second year
Intended purpose	The VibroSense Meter® II is a non-invasive medical device intended for transient use with the purpose of measuring vibration perception thresholds of the intact skin on the hand or foot in humans by Quantitative Sensory Testing (QST).



Accessories included

Measuring device
Response button
Power adapter
The VibroSense Meter® II software (VSM II) under licence on requested application area.



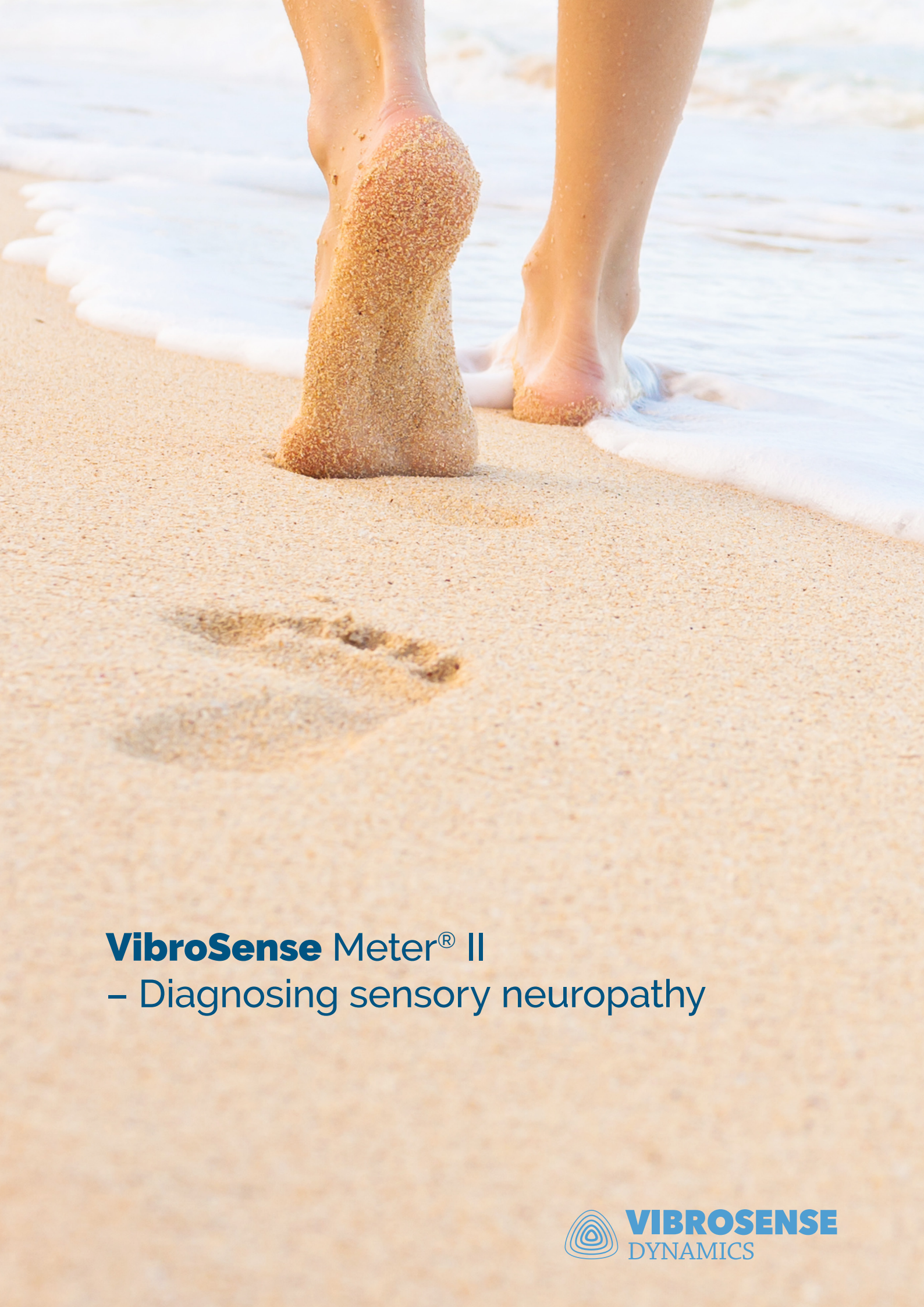
The VibroSense Meter® II software requirements

Standard PC
Operating system: Windows 7 or later
Free hard disk space: Min. 20 MB

EU-Directive 2002/44/EG

The VibroSense Meter® II is specially designed to be a useful tool for the assessment and health surveillance required by the EU directive 2002/44/EG.

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VibroSense Meter® II

– Diagnosing sensory neuropathy

The VibroSense Meter® II

The VibroSense Meter® II is built on advanced technology to measure and analyse the neurosensory function of hands or feet by examining the ability to perceive vibration at multiple frequencies.

The evolution of the VibroSense Meter® II is based on more than three decades of experimental and clinical research addressing peripheral sensory neuropathy of the hand and foot.



System description

The VibroSense Meter® II consists of a Measuring device, a Response button and a PC software.

The finger or the foot is placed on a probe which vibrates at different frequencies and intensities.

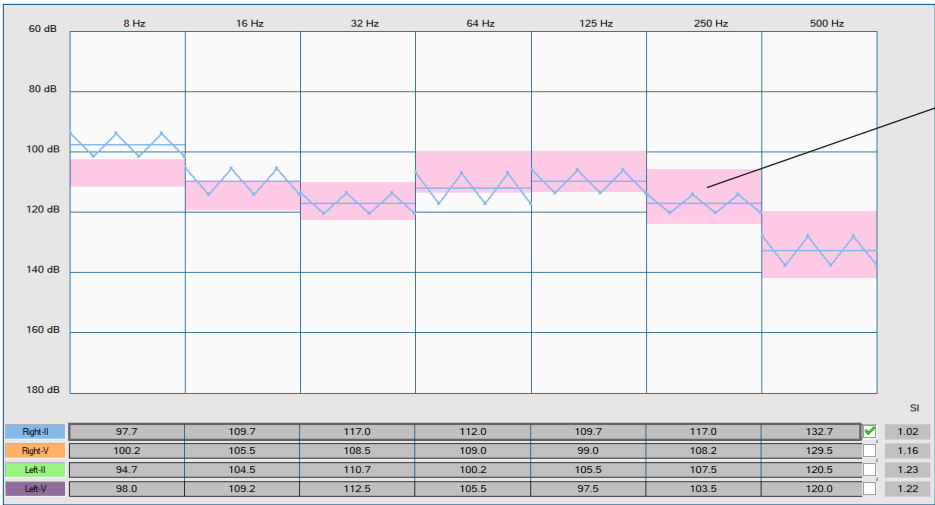
The patient presses the Response button and a Vibrogram is recorded according to a modified von Békésy up/down psychophysical algorithm.

The examination method is called Multi Frequency Vibrometry.

Different types of mechano-receptors in the skin are stimulated at different frequencies. The vibration perception capacity of the patient is recorded, analogously to a hearing test by audiometry.

Vibrogram

The VibroSense Meter® II quantifies Vibration Perception Thresholds (VPTs) of the hand or foot at seven frequencies between 4 Hz and 500 Hz. The examination result is presented as a Vibrogram, which shows the recorded VPTs versus the employed frequencies.



The Vibrogram is automatically compared with a reference area, – matched for age and gender of the patient.

This makes the VibroSense Meter® II ideal for identifying subclinical conditions as well as pathological disorders of the sensory nervous system.

Characteristics

- Multi Frequency Vibrometry
- Pre-symptomatic and subclinical detection of sensory neuropathy
- Includes screening or full examination
- Quantitative and objective
- Built-in reference, based on 1100 healthy individuals aged 8-80 years
- Control of applied skin force
- Non-invasive and painless
- Remote skin temperature measurement
- Integrated patient record system
- Small and portable

Medical applications

Sensory neuropathy of the hand or foot often manifests as impaired vibration perception thresholds. This is a characteristic finding in:

- Diabetic Peripheral Neuropathy (DPN),
– diagnosis support and prevention of foot ulcers
- Chemotherapy Induced Peripheral Neuropathy (CIPN)
– individualisation of therapy
- Hand Arm Vibration Syndrome (HAVS)
– early detection and prevention
- Carpal Tunnel Syndrome (CTS) and other Compression nerve entrapments
– diagnosis support and follow up
- Other neurological disorders, e.g., Multiple Sclerosis (MS)
– diagnosis support and follow up



VibroSense Meter® II system

The VibroSense Meter® II PC-software controls the Measuring device and stores recorded Vibrograms in a database.

The VSM software may be used for diagnosis support, e.g. by showing neuropathy development over time. All results can be exported directly to MS Excel for further analysis.