



VIBROSENSE
DYNAMICS

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VIBROSENSE METER TECHNICAL SPECIFICATIONS

MEASURING UNIT

Size (w,l,h) 26 x 36 x 18 cm
Total weight 7 kg incl. carrying box
Operating temp. 0 - 50 °C
Power 60 W, 24V
PC interface USB 2.1, RS232
Psychophysical algorithm von Békésy up/down
Measurement compliance ISO13091-1
EMC compatibility IEC 61000
Safety EN60 601-1, class I
Frequencies 4-500 Hz
Amplitude 0.01 - 100 m/s² (80-160 dB)
Ramp speed +/- 3 dB/s
Skin temp. accuracy +/- 1 °C
Calibration Self-calibrated at start up

EU-DIRECTIVE 2002/44/EG

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

- Minimum requirements for the protection of workers
- Shall apply to activities in which workers are or are likely to be exposed to risks from mechanical Hand-arm vibration during their work
- The employer shall carry out the risk assessment, to any effects concerning the health and safety of workers
- The daily exposure standardised action value and limit value shall be 2,5 m/s² and 5 m/s² respectively
- Vibration that entails risks to the health and safety of workers, in particular vascular, bone or joint, neurological or muscular disorders
- The employer shall arrange continued health surveillance and provide for a review of the health status of any worker
- The Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive no later than 6 July 2005

CONTROL & ANALYSIS SOFTWARE, VSM

Operating system Windows XP, 2000
PC requirement Standard PC, min. 500 MHz
Free hard disk space Min. 20 MB ⁴
RAM Min. 128 MB
Diagnosis packs⁵ HAVS/CTS, OHC HAVS/CTS (Occupational HealthCare), Diabetes

⁴ Depends on required number of examinations and patients.
A 2 GB hard disk will room about 10 000 examinations.
⁵ New packs will be added continuously and/or upon customer request.

ACCESSORIES INCLUDED

Measuring Unit, Response button, Power Supply, Carrying Case, Analysis software ⁶ (VSM)

⁶ One diagnosis pack (free of choice) is included as standard. Additional diagnosis packs may be ordered separately.

VibroSense Meter[®]



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VibroSense Meter®

The VibroSense Meter offers a new and more sophisticated technique to analyse the vibration sense of the hand within several various frequencies. The evolution of the VibroSense Meter is based on more than two decades of experimental and clinical research addressing vibration-induced neuropathy of the hand caused by hand-held vibrating tools.

FEATURES

- Easy to use, non invasive analysis
- Unique and proven measuring method
- Small, fully portable device
- Multiple test modes including screening
- Extensive reports & summary printouts
- Applied skin force control (patent pending)
- Automatic measuring of skin temperature
- Analysis software on a standard PC
- Multi user environment with secured central or local data backup
- Integrated patient record system
- Specific examination templates for diagnosis¹ of HAVS/CTS² and Diabetes induced neuropathy

¹ Diagnosis templates will be added continuously.
² Hand-Arm-Vibration Syndrome/Carpal Tunnel Syndrome.

TARGET USE

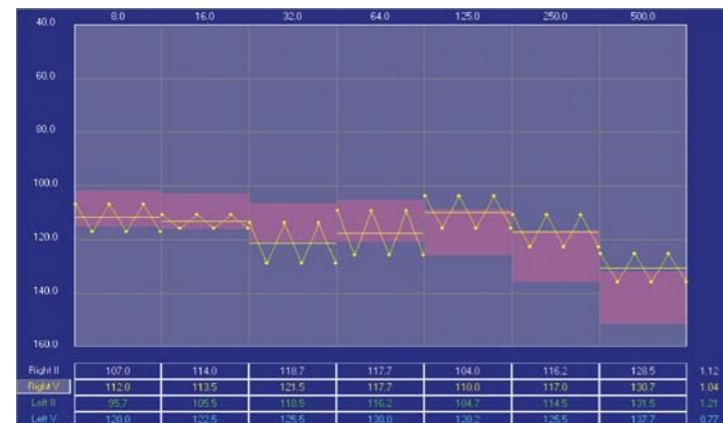
The VibroSense Meter is intended to be a versatile tool for physicians and nurses in their daily work, e.g. in:

- Occupational medicine, Hand surgery, Orthopedics and Diabetes care
- Pre and post-employment Screening
- Occupational healthcare
- Primary care centers

MEDICAL APPLICATIONS

Impaired vibration sense in the hand is a characteristic finding in:

- Vibration-induced neuropathy (HAVS)
- Compression neuropathies such as carpal tunnel syndrome (CTS) and ulnar nerve compression
- Cervical root compression
- Diabetes neuropathy



VIBROGRAM

The VibroSense Meter investigates the vibration perception (VPT³) of the hand or foot within multiple frequency bands from 4 to 500 Hz. With the investigation a vibrogram is recorded.

The recorded curve is compared with normative age-matched thresholds. The result is presented as a quote called Sensibility Index (SI). SI below 0.8 is regarded pathologic.

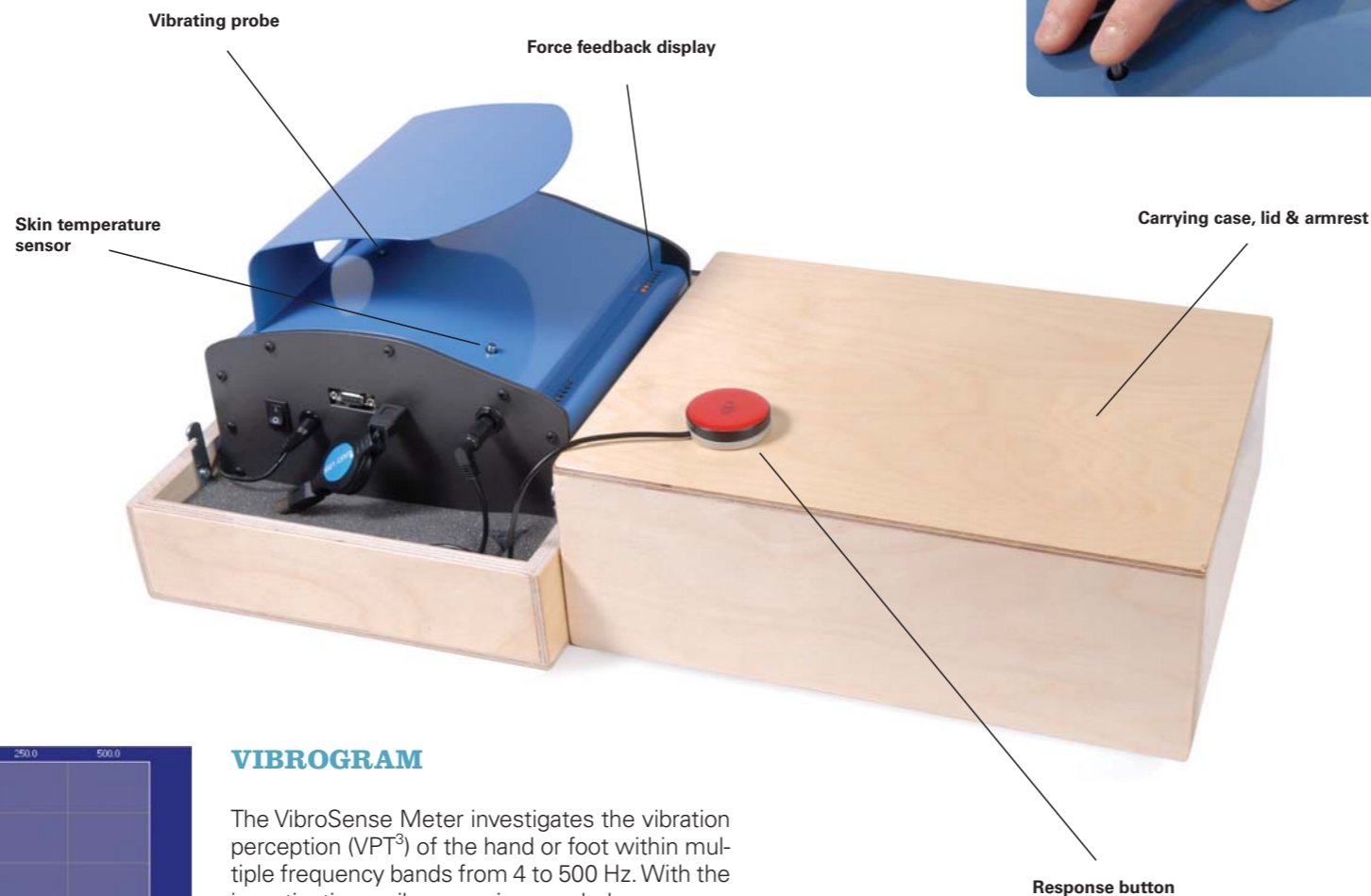
³ Vibrotactile Perception Thresholds

SYSTEM DESCRIPTION

The VibroSense Meter consists of a stand alone Measuring Unit (MU), control and analysis software (VSM) and a sense Response button.

The examined patient controls the Response button while the vibrogram is recorded according to a von Békésy up/down psychophysical algorithm.

The procedure is analogous to assessment of the hearing sense by audiometry. Instead of feeding the ear with a number of tones the skin is excited by a vibrating probe with varying frequencies, stimulating various types of mechanoreceptors in the skin to get a total picture of the vibrosensory capacity.



The MU works as an excitation device while the VSM controls the MU and stores recorded vibrograms in a Database.

Numerous possibilities are provided to search recorded data in the database with advanced fixed or user defined filter search criteria's.

Many search results may be presented as diagrams, e.g. to show changes over a period of time. All results can also be exported directly to MS Excel for further analysis.

