

VIBRATRON-II, Vibration Sensitivity Tester

- C Assess peripheral nerve function
- C Monitor peripheral nerve function
- C Field studies or clinical testing
- Non-invasive test

The Vibratron II provides a non-invasive means of measuring the sensitivity to vibration of large nerve fibers of a patient's fingers and toes. Reliable quantitative measurements are achieved with a test that takes only minutes to administer. A two-alternative, forced-choice procedure is used to determine the degree of sensitivity for comparison to normals.

The Vibratron-II consists of a small controller and two separate vibrating rods. Vibration amplitude, which is continuously adjustable, is displayed on the front panel.

There are two ranges. For fine control, 0-6.5 vibration units corresponds to an amplitude of 0-20 microns. For low resolution, 6.5-20.0 vibration units corresponds to 0-200 microns. A table and a formula are provided for conversion of vibration units to microns.

Set up is accomplished in minutes and the equipment is easy to use. The system is therefore practical for both field studies and clinical testing.

The Vibratron II has been chosen by many large pharmaceutical companies for drug studies; by government agencies for studies into the effect of exposure to industrial solvents and dioxin, and by researchers and organizations studying diabetics.

Environmental applications

- Screening of multiple subjects for effects of exposure to neurotoxins - toxic dump sites, industrial accidents, solvents in chemical plants.
- Evaluating workers for job related cumulative trauma disorders such as carpal tunnel syndrome.

Clinical applications

- Early detection and monitoring of sensory loss resulting from alcoholism and diseases such as diabetes.
- Early detection of sensory loss resulting from drug therapy.
- Evaluation of nerve recovery after cessation of drug therapy or other treatment.
- Evaluation of nerve recovery after hand surgery.



The Testing Procedure

During testing, the subject is asked to touch each vibrating rod in turn with a finger or toe and is then required to decide which of the rods is vibrating. The location of the vibration stimulus and the intensity sequence are under experimental control and are determined by a testing algorithm. Information on the algorithm and a procedure for data analysis are included in the operating manual with a sample test sheet for logging results.

SPECIFICATIONS

Controller

Range - high resolution: 0 - 6.5 vibration units* (0-20 micron range)

- low resolution: 6.5 - 20.0 vibration units (20-200 micron range)

Resolution: 0.1 vibration units

Display: 3.5 digit LED

Power Supply: 110 or 220V AC

Dimensions: 5.75" x 8.6" x 23.5"

Weight:: 4.25 lbs.

Vibrator Motors

Size of base: 5" x 3" x 4" (12.7 x 7.6 x 10.2 cm)

Post height: 3/8", 95 mm

Weight: 2.25 lbs. each

Accessories Supplied Carrying case, damper mats

*Vibration units are converted to microns using the table/formula supplied in operating manual

€ mark pending

QUANTITATIVE SENSORY TESTERS



Footrest shown with Vibratron-II vibrating posts

Foot Rest

The optional footrest is designed to be used with the Vibratron-II (shown at left). The footrest is 12" long x 8" wide x 4¼" high with adjustable non-slip leveling feet (feet are adjustable to add up to ½" of additional height if needed). Surface of the footrest is a white hygienic non-skid vinyl covering and can be easily cleaned between uses. The unit is large enough to accommodate both feet and may also be used as an armrest when testing upper extremities. The weight of the unit is approximately 4.5 pounds. The footrest can also be purchased as an option to the NTE-2A as shown in the photograph on page 33.

NTE-2A Thermal Probe and Controller

- **Non-invasive assessment of peripheral neuropathy or thermal pain thresholds**
- **Convenient hand held "thermode"**
- **Four second response time**
- **Computer control option**

The NTE-2A Thermal Probe is a sophisticated, non-invasive device for the clinical evaluation of neuropathy and the assessment of short-fiber neurological function. Individual thresholds are compared to statistical normals. These results provide an accurate means of tracking chronic changes in small fiber nerve function. It can also be used for pain studies and in any application where a variable, accurately-controlled temperature stimulus is required. The NTE-2A is often used in conjunction with the Vibratron II to assess peripheral neuropathies.

The equipment comprises a hand held pen-shaped probe with a smooth flat tip 13mm in diameter on a 5 foot lead, a digitally-set temperature control unit and a recirculating pump with a combined water reservoir, which is required to cool the probe during operation.

The Thermal Probe, or "thermode", utilizes a Peltier semiconductor heat pump to provide temperature stimuli above and below room temperature. The temperature range of the thermode extends from 0 to 50°C and the response time to a step change in temperature is extremely fast, less than 4 seconds in both the heating and cooling mode.

The Digital Control Unit incorporates proportional feedback to maintain accurate temperature control to within 0.1°C. Setting of



NTE-2A system

the control temperature is accomplished using three rotary switches providing switched steps of 5, 1 and 0.1° covering a range of plus and minus 20° about a base temperature that may be preset between 20° and 30°C. A digital display on the front panel indicates the temperature at the probe tip with a resolution of 0.1°.

An accessory D/A card and software program, the TPC-WIN Thermal Profile Controller, is available to provide the user with the ability to change the temperature of the probe under software control via a PC and create complex temperature profiles that can be recalled from file. The software will run under Windows'95 or '98®. (see page 22)

The equipment can be supplied for 110-120V or 200-240V AC operation. Please specify when ordering.

NTE-2 Thermal Sensitivity Tester

This instrument is similar to the NTE-2A, except that it has two controllers and two stationary Thermodes measuring 46mm x 48mm. It is useful in research requiring more complex algorithms than the NTE-2A.