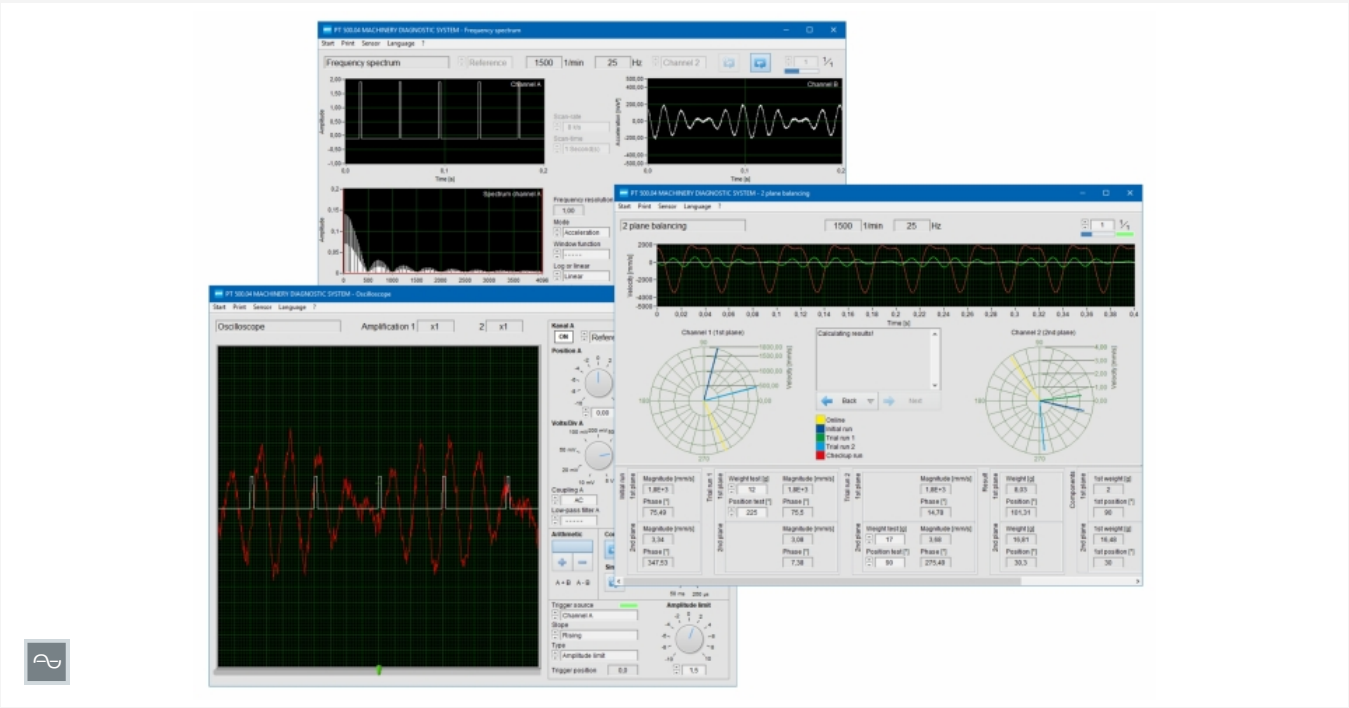
PT 500.04

Computerised vibration analyser



Description

- **versatile, powerful software for vibration analysis**
- **supports all machinery diagnostic experiments of the PT 500 series**
- **suitable for field balancing of rotors in one and two planes**

The computerised vibration analyser was developed specially to support analysis of machinery diagnostic experiments of the PT 500 series. The analyser can also be used in many other vibration experiments (such as TM 150).

The system comprises two acceleration sensors, a measuring amplifier with adjustable gain, a USB box and the analysis software.

The analysis software offers the following features: two-channel oscilloscope for investigations in the time range; two-channel spectrum analyser for investigations in the frequency range; vibration measuring unit; envelope analysis for bump effects and roller bearing damage; travelling filter to record run-up curves; orbit display; and a balancing module for field balancing of rigid rotors in one and two planes.

The software permits various analytical methods to be applied to a vibration signal and compared in terms of their efficacy. This enables the advantages and disadvantages of the various techniques to be effectively discovered. The balancing process is presented step-by-step.

The software features an intuitive user interface, and is highly user-friendly. An online help function provides guidance on the various functions. Measuring results can be printed out.

Cables, brackets and fixings are supplied.

Learning objectives/experiments

- within the context of the experiments in the complete PT 500 series, the following learning can be covered:
  - familiarisation with vibration signals
  - correct application of FFT analysis
  - measurement of speed, vibration displacement, vibration velocity and acceleration
  - assessment of the vibration state of a machine
  - damage analysis of roller bearings and gears by means of envelope spectra
  - detection of cracks in shafts by means of run-up curves and order analysis
  - measurement of imbalance vibrations and field balancing of rigid rotors in 1 and 2 planes

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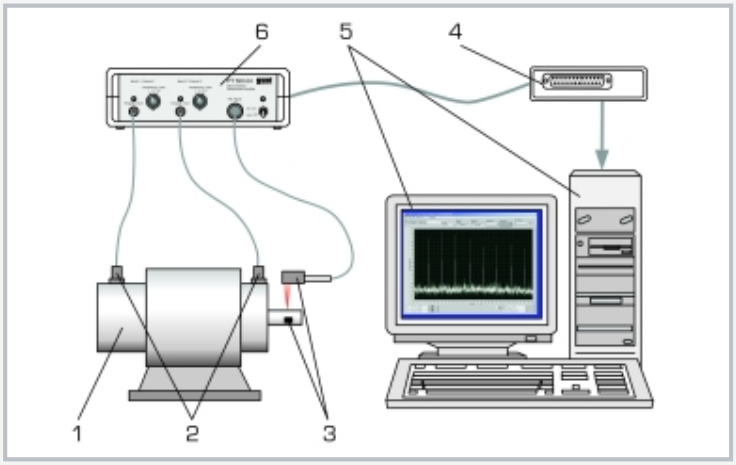
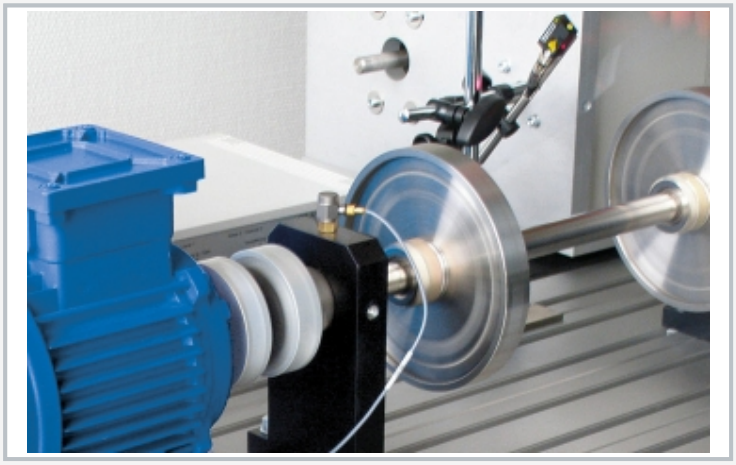


1 vibrating machinery, 2 acceleration sensors, 3 shaft with reference sensor, 4 USB box, 5 PC (PC not included), 6 measuring amplifier / filter



Application of the sensors: acceleration sensor on the black bearing support, speed sensor with holder

The illustration shows all components of PT 500.04

Specification

[1] computerised vibration analyser for representation and evaluation of experiments with the PT 500 "Machinery diagnostic" series
[2] 2 acceleration sensors to record vibration displacement, vibration velocity and acceleration
[3] optical sensor to record speed
[4] 2-channel measuring amplifier with adjustable gain
[5] software features: 2-channel oscilloscope; 2-channel FFT analyser; envelope analysis; run-up curve and order analysis; 2-plane field balancing
[6] 2 displacement sensors PT 500.41 can be connected
[7] suitable for general vibration measuring tasks
[8] stackable storage system to house the components
[9] GUNT software for data acquisition via USB under Windows 11

Technical data

Acceleration sensors
- frequency range: 1...10000Hz
- sensitivity: 100mV/g
- resonance frequency: 25kHz

Optical speed sensor
- sensing distance: 3...150mm
- laser class II
  - wave length: 650nm

Measuring amplifier
- adjustable gain: x1, x10, x100
- powered by 12VDC power supply unit
- LxWxH: 230x220x80mm

USB box
- 16x analogue in, 2x analogue out
- each 4x digital in/out

230V, 50Hz, 1 phase
230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase
UL/CSA optional
LxWxH: 600x400x220mm (storage system)
Weight: approx. 6kg

Required for operation

PC with Windows

Scope of delivery

1 measuring amplifier
2 acceleration sensors
1 speed sensor with holder and reflective tape
1 GUNT software + USB cable
1 USB box + data cable
1 combination wrench, AF 13
1 storage system with foam inlay
1 manual