

Test Bench for Modal Analysis and NVH

Technical data

- Portable Signal Analyzer:
National Instruments PXIe-4499

Analog Input Channels	2x 16
Sampling Rate	100 Hz ...208.4 kHz
Signal Conditioning	Current excitation Anti-Aliasing-Filter
Signal Resolution	24 bit

- A/D-converter: Presonus FireStudio Project

Audio Interface	FireWire
Analog Input	8 Microphone / Line 2 Instrument
Sampling Rate	96 kHz



Equipment

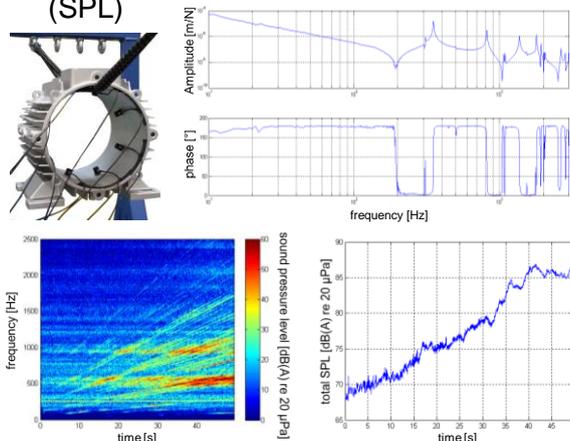
- Impact Hammer with Force Sensor:
PCB Piezotronics 086C03
 - Current excitation 2-20 mA
- Acceleration Sensors
 - Uniaxial: Metra Mess- und Frequenztechnik MMF KS95B-10
 - Triaxial: PCB Piezotronics 356A03
- Microphone: Behringer ECM 8000
- Laservibrometer: Polytec PDV-100
- Shaker: Brüel & Kjær 4809

Measurement capabilities

Force (Impact Hammer)	Amplitude ~2200 N Frequency ~ 8 kHz
Acceleration (Sensors)	Amplitude 5500 m/s ² Frequency 0.2 – 20 kHz
Velocity (Laservibrometer)	Amplitude 500 mm/s Frequency 0.5 – 22 kHz
Sound Pressure (Microphone)	Frequency 0.02 – 22 kHz

Current application/ Opportunities

- Experimental Modal Analysis
 - Determination of eigenfrequencies, eigenmodes and damping factors of mechanical structures
 - Determination of transfer functions between excitation and measurement points
- Analysis of operational vibration
- Measurement of sound pressure level (SPL)



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