

Natural Frequency Measurement System

This system is designed for in-depth observation of vibration phenomena in an object. The transfer function for exciter signal and response signal is calculated and used to determine the natural frequency of the object.

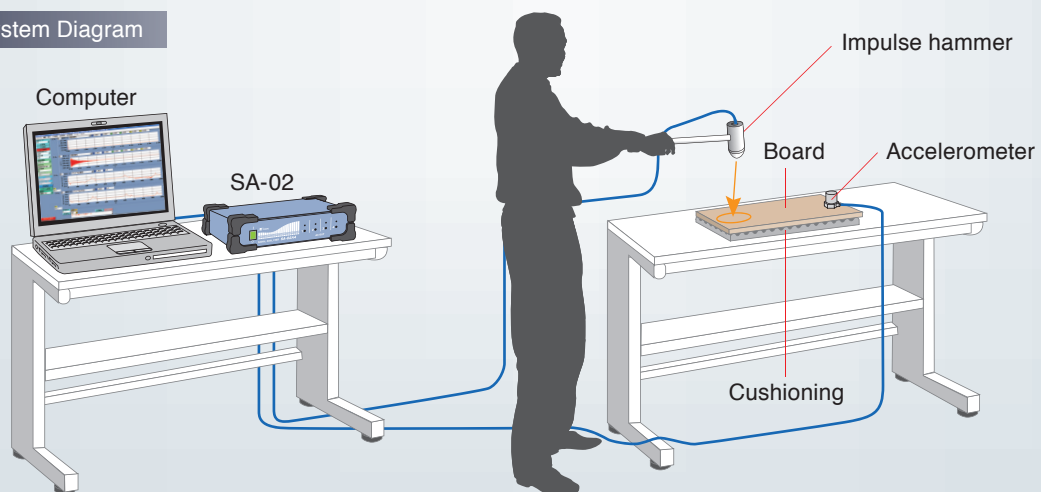
In the example shown below, the elasticity coefficient of a material is to be determined. The object is hit with an impulse hammer in the axis of member direction, and the vibration is measured with a piezoelectric accelerometer. The transfer function of the two waveforms serves for calculating the natural frequency.

The system uses the Multi-Channel Signal Analyzer SA-02 and allows easy determination of the transfer function between channels averaged for the number of measurements.

The impulse hammer and piezoelectric accelerometer can be connected directly if equipped with an integrated amplifier. The trigger function allows selective waveform data acquisition when the object is hit.

Measured data can be compiled using a computer connected to the Multi-Channel Signal Analyzer SA-02 and saved as CSV files. This makes it easy to perform secondary processing of measurement results in spreadsheet software such as Excel.

System Diagram



Equipment configuration

Product	Model	Quantity
4-Channel Signal Analyzer	SA-02A4	1
Computer for SA-02		1
Piezoelectric Accelerometer	PV-90T/91C/97I/41	1
Accelerometer cable	VP-51 series	1
BNC adapter	VP-52C	1
Impulse hammer with integrated amplifier (e.g. Dytran 58 series)		1
Impulse hammer cable		1

Measurement result examples



Measurement screen



Setup result screen

Application examples

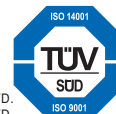
Measurement of Young's modulus of material, stiffness evaluation of retainers, natural frequency measurement, etc.

Applicable standards, reference material

None



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