

DIGITAL INDUSTRIES SOFTWARE

Simcenter Qsources

High-frequency shaker

Simcenter/Q-HSH/C/20221109

Product Information Sheet

Summary

The Simcenter™ Qsources hardware

A High-frequency shaker has been developed by Simcenter™ Engineering services to perform highly repeatable, high-frequency structural excitation in a minimum space.

It provides excitation, but with extremely low mass and stiffness loading of the test object. The inert mass is decoupled from the stinger dynamically by means of internal suspension.

This suspension keeps the inert mass well aligned in all orientations and significantly minimizes the mass rigidly coupled to the test object.

BENEFITS

- Enables internal excitation of assemblies in hard-to-reach locations
- Ensures self-suspension and alignment
- Minimizes mass loading
- Covers frequency range of 250 to 13,000 Hz



FEATURES

- Integrated 1D force sensor
- Patented internal 3D suspension system
- Inert mass can be installed on sequential stingers
- Built-in protection for electronics

The stinger is the base for the coil windings and is glued directly to the test object in the desired direction. The force generated is dictated by the stinger and thus is perpendicular to the surface. A single-axis force sensor has been integrated into the inert mass. This enables users to acquire frequency response functions (FRF) accurately.

Multiple stinger-coil assemblies can be attached to the test object to enable an efficient roving shaker excitation using one or more driver magnets with integrated force sensors. You can speed up data acquisition by using FRF with multiple shakers in parallel and uncorrelated signals.

The shaker can be mounted inside assemblies and measurements can be performed when the test object is reassembled. To minimize the mass loading, the stinger is kept as small as possible while maintaining stiffness. The stinger is therefore also made replaceable to reduce downtime as much as possible.

To facilitate the long-term reliable use of the shaker, Siemens PLM Software offers a sensitivity measurement service for the internal transducers, including a detailed performance check.

Applications

- High-frequency FRF testing - 13kHz
- Full vehicle
- Subcomponents
- Mechatronics

Physical specifications

- Dimensions: Ø20 X 25 millimeters (mm) height (30 mm including cable)
- Total mass: 30 grams
- Dynamic mass loading of the test object: <2 grams
- Stinger footprint: Ø7 mm
- Sensor connector type: female 10-32
- Sensor cable length: 50 centimeters (cm)
- Power cable connector: male banana
- Power cable length: 4 meters

Performance

- Sensor frequency range ($\pm 2\text{dB}$): 300 to 10,000 hertz (Hz)
- Force level*: 0.8 Newton rms
- Internal sensor type: IEP

Supplied accessories

- User manual
- 1 drive unit
- 1 electronic protection device
- Signal and power cables
- Adhesive
- Lubricant
- Stinger extensions
- Removal tool
- Cleaning tools
- Sensitivity sheet internal sensor
- Flight case

Product options

- Simcenter Qsources measurement amplifier [Q-AMP230V/Q-AMP115V]
- Simcenter Testlab™ software MIMO
- FRF Testing, spectral acquisition or

- similar
- Calibration service [Q-SR-SENS]

Prerequisite

- Internal stinger set. Set of 6 pieces [Q-HSH-FC]

Simcenter Qsources structural and acoustic excitors



- Low-mid frequency volume source [Q-LMF]
- Mid-high frequency volume source [Q-MHF]
- Integral Shaker [Q-HSH]
- Miniature shaker [Q-MSH]
- Thumper shaker [Q-TMP]
- Low-Frequency Monopole Source [Q-MED]-frequency