

DIGITAL INDUSTRIES SOFTWARE

# Simcenter Exciters

## Low Frequency Miniature Source

Simcenter/Q-IND2/A/20230621

### Product Information Sheet

#### Summary

The Low Frequency Miniature Source has been developed

with Simcenter™ Engineering services to perform highly repeatable, low frequency acoustic excitation in a minimum of space. The two domes are placed centrally to enable a monopole noise emission from the center. The drive system allows a large stroke for maximum air displacement in a minimum amount of space. An internal sensor provides a real-time voltage which is proportional to the generated volume displacement. This enables engineers to measure calibrated acoustic and vibro-acoustic FRFs.

The geometric volume is more than 5 times smaller than the Simcenter Low Frequency Monopole Source allowing excitation in even smaller cavities and with less influence on the vibro-acoustic system under test.



## BENEFITS

- Enables internal acoustic excitation of assemblies in hard-to-reach locations
- Broadband excitation till 2 000Hz
- Monopole noise radiation

## FEATURES

- Integrated sound source strength reference signal
- Patented low frequency noise generation system
- Built-in protection for electronics

The FRFs can be used for acoustic modal analysis, Airborne Source Quantification and other advanced NVH methods. The miniaturized source can be suspended in a variety of ways using metric screw threads or elastic bungees to obtain a dynamic decoupling to the test object when positioned inside an assembly.

A PT1000 temperature sensor allows to track the source temperature for even more accurate FRF data.



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

### Applications

- FRF for acoustic modal analysis
- Full vehicle FRF
- Transfer Path Analysis
- Airborne Source Quantification
- Subsystem vibro-acoustic FRF

### Physical specifications

- Dimensions: Ø25 X 110 millimeters (mm) (130 mm including cable)
- Total mass: 300 grams
- Sensor connector type: 10-32 microdot jack
- Sensor cable length: 3 meter
- Power cable connector: banana plug
- Power cable length: 4 meter
- Cable routing opening: Ø7 mm

### Performance

- Sound power (Lw): 85dB (flat input 50 - 2 300Hz, ref. 10-12 W)
- Sensor frequency range ( $\pm 2$ dB): 50 to 2 000 Hertz (Hz)
- Monopole characteristic: 50-2000 Hz
- Sensor type: Voltage AC
- Start frequency vehicle cavity FRF\*: 20 Hz.
- Start frequency body noise FRF\*: 100Hz

\*Frequencies based on a regular C type vehicle.

### Supplied accessories

- Miniature Source
- User manual
- 1 electronic protection device
- Calibration certificate sensor
- Set of supports
- Flight case

### Product options

- Simcenter Qsources measurement amplifier [Q-AMP230V/Q-AMP115V]
- Simcenter Testlab™ software MIMO
- FRF Testing, spectral acquisition or similar
- Cable for reference sensor to ADC frontend
- Calibration service [Q-SR-SENS]

**Simcenter Qsources structural and  
acoustic exciters**

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