

SENSEBOX[®]

7001/02/03

LOW-NOISE MEMS ACCELEROMETER

"Beyond the standards"



SENSEBOX700x is a low-noise accelerometer based on high-end MEMS technology. For certain Structural Health Monitoring projects with lower rigidity level, such as bridge spans & cables, towers, this product provides the cost advantage and becomes the ideal technical choice. In such projects, where force-balance accelerometers are over-qualified, SENSEBOX700x saves the project budget. As well as, SENSEBOX700x offers one of the best MEMS sensitivities in the market, accompanied by high stability & low-power advantages.

Besides this accelerometer is also quite suitable for Forced-Vibration Tests, Shake-Table Tests, Vibration & Modal Analysis for Predictive Maintenance and provides the best price-performance ratio.

24-Bit, high dynamic range digitizer should be selected along with this analogue-output sensor to convert the data into digital. TESTBOX2010 Digitizer is fully compatible with this sensor.

This sensor is also suitable for tilt measurements. TDG MONSTER software allows the user to record high frequency vibration data and low frequency tilt data simultaneously.

"High-End MEMS"

Features

- High-End MEMS Technology
- Low Cost / High-Performance
- Low-Noise / Low-Power
- Long-Term Durability
- Small Size
- Acceleration & Tilt Measurement

Fields Of Application

- NATURAL FREQUENCY MEASUREMENTS ON BRIDGES
- MODAL ANALYSIS
- FORCED-VIBRATION TESTS
- SHAKE-TABLE TESTS
- VIBRATION ANALYSIS FOR PREDICTIVE MAINTENANCE
- UNIVERSITY LABORATORIES
- GRADUATE / UNDERGRADUATE EDUCATION
- CRASH TESTS
- ROBOTICS
- IMPACT TESTS
- RAILWAY TESTS / TRAIN ANALYSIS



Technical Specifications

NUMBER OF AXES / SUB MODELS

SENSEBOX7001	Uniaxial
SENSEBOX7002	Biaxial
SENSEBOX7003	Triaxial

MEASUREMENT

Measurement Range	$\pm 2 \text{ g}$ ($\pm 4\text{g}$ & $\pm 8\text{g}$ versions available)
Dynamic Range	>100 dB @ 1 Hz
Sensitivity	0.4 V/g ($\pm 2\text{g}$ version) 0.2 V/g ($\pm 4\text{g}$ version) 0.1 V/g ($\pm 8\text{g}$ version)
Frequency Bandwidth	DC-1000 Hz
Non-Linearity	0.1%
Cross-Axis Rejection	0.01 g/g
Tilt Meas. Range	$\pm 90^\circ$
Offset Temp. Drift	$\pm 0.1 \text{ mg}$ (0.006 deg) / $^\circ\text{C}$

POWER/ELECTRICAL

Excitation Voltage	5 V DC
Output Type	Single-Ended Voltage Output
Power Consumption	< 200 μA @ 5 V DC

PHYSICAL & ENVIRONMENTAL

Dimensions	85 x 50 x 40 mm (Standard) 35 x 65 x 15 mm (Miniature Housing)
Connector Interface	IP67 Push/Pull Metal Connector Cable Bushing Output
Operating Temperature	-40 $^\circ\text{C}$... +60 $^\circ\text{C}$
Storage Temperature	40 $^\circ\text{C}$... +70 $^\circ\text{C}$
Enclosure	P67 Plastic IP54 Plastic (Miniature Housing)

CERTIFICATION

CE	LVD (2014/35/EU) EMC (2014/30/EU)
Calibration	TDG Calibration Lab.

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