

## TRIAxIAL ACCELEROMETER (MEMS technology)

### Description

The triaxial accelerometer is a device capable of measuring the acceleration of the point where it is installed, fundamental for measuring vibration frequencies and for carrying out the modal study of structures. By carrying out periodic measurements spaced over time, it is possible to identify structural variations and anomalies, linked to local damage, variations in the geometry or behavior of the materials and therefore, ultimately, it is possible to determine the current state of health of the work (Structural Health Monitoring).

The Gestecno accelerometer is a sensor based on capacitive MEMS technology with digital output that can be connected to the datalogger in two ways: through the RS485 serial line, with open communication protocol, or wirelessly via Lo.Ra. protocol.

It contains a high resolution accelerometer sensor and a backup accelerometer sensor. The presence of a double accelerometer on board allows the operator to immediately understand whether an anomalous reading of a sensor is caused by a malfunction of the measurement accelerometer or by an actual structural anomaly, being able to compare the readings of the two sensors in real time and thus avoiding the multiplication of useless inspection interventions.

Furthermore, the sensor is equipped with an integrated GPS module which, through communication with different satellite constellations, guarantees the synchrony of the acquisitions, an essential aspect for modal analysis.

The signal acquired by the sensor is digital and the 24-bit conversion is carried out directly in the electronic circuit on the board, thus canceling the inevitable signal losses due to the noise introduced by its transit along the wiring.

### Applications

- Dynamic structural monitoring of bridges and viaducts
- Dynamic structural monitoring of buildings of historical-artistic value
- Dynamic structural monitoring of telecommunication towers and wind turbines



### Features

- Double accelerometer sensor to facilitate the processes of identifying instrumental anomalies
- Digital output signal to minimize noise
- 24 bit resolution
- IP67 protection rating
- Robust construction and also suitable for difficult environments
- Vertical and/or horizontal installation
- Easy assembly

## Technical Specifications

<b>Technology</b>	Triaxial digital MEMS
<b>Acquired variables</b>	Acceleration (x, y and z) and temperature
<b>Measuring range</b>	+/-2g, +/-4g, +/-8g
<b>Resolution</b>	24 bit (3.9µg, 7.8µg, 15.6µg)
<b>Precision</b>	+/- 9 mg
<b>Sensitivity</b>	2000 mV/g (for FS +/-2g)
<b>Non-linearity</b>	< 0.1% (per FS +/-2g)
<b>Noise density</b>	< 25 µg/√Hz
<b>Phase angle variation</b>	< 15° in 0-50 Hz
<b>Sampling rate</b>	0-500 Hz
<b>Temperature stability</b>	+/- 0.01%/°C
<b>Output signal</b>	digital RS485
<b>Connection</b>	wire (with RS485 bus) or wireless (with Lo.Ra. protocol)
<b>Radio channel frequency</b>	868 Mhz
<b>Max connection distance</b>	1-3 km
<b>Power supply</b>	wire (RS485 version) and with internal battery (wireless version)
<b>Operating temperature</b>	-40...+85 °C
<b>Case dimensions</b>	75 x 80 x 57 mm
<b>Degree of protection</b>	IP67
<b>Housing material</b>	Aluminum alloy
<b>Fixing method</b>	Three-point (with screws and plugs) on the wall, ceiling or ground
<b>Activation threshold mode</b>	Acquisition of n triaxial acceleration samples following exceeding the activation threshold set by the user
<b>Scheduled acquisition mode (for Modal Analysis)</b>	Acquisition of n acceleration samples with a fixed frequency and triaxial synchronous acquisition started by datalogger (analysis duration equal to 60 minutes)
<b>Absolute synchronization</b>	Based on GPS signal (+\ - 1 sec)
<b>Relative synchronization</b>	max 100 ns

## Accessories and spare parts

- Cut-to size signal cable

## Please Specify

CODICE	DESCRIZIONE PRODOTTO
ACC-100	Triaxial accelerometer wired version
ACC-200	Triaxial accelerometer wireless version
ACC-900	Electrical cable for RS485 line



## For further information

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