

SENSEBOX7043-D

DIGITAL, ULTRA LOW NOISE
TRIAIXIAL ACCELEROMETER / TILTMETER

“ Innovation Brings the Unbeatable Solution-
Micro Level Digital Acceleration and Tilt ”



www.tdg.com.tr

TDG presents the most innovative ultra-high precision directly digital accelerometer/tiltmeter of its class. With ultra-high sensitivity micro-level measurements become possible. In Structural Health Monitoring applications under ambient vibration, this sensor can easily detect the natural frequencies of even highly rigid structures.

This 29-bit resolution digital sensor brings both acceleration and tilt(inclination) measurement in a single unit. With the software setting, it is possible to switch between accelerometer or tiltmeter modes in any time. When used with TDG MONSTER software, users can record high frequency vibration data and low frequency tilt data simultaneously. SENSEBOX7043-D includes a triaxial sensor that has been specifically developed for tilt & acceleration measurements and directly outputs digital data to the computer software.

Features

- Excellent Price/Performance Ratio
- Micro-Nano Level Measurements
- Software Selectable Accelerometer / Tiltmeter Modes
- Natural Frequency Detection under Ambient Vibration
- Direct Digital Output
- Ultra-High Digital Tilt Sensitivity
- Built-in Temperature Sensor
- Easiest Connection By Ethernet
- Easy Installation
- Extreme Durability

Field Of Applications

- STRUCTURAL HEALTH MONITORING
- NATURAL FREQUENCY / AMBIENT VIBRATION
- MOST RIGID STRUCTURES
- BRIDGES / TUNNELS / VIADUCTS
- APARTMENTS / HIGH-RISE BUILDINGS
- SEISMIC ISOLATOR MONITORING
- STRENGTHENING AND RESTORATION PROJECTS
- HISTORICAL STRUCTURES
- INDUSTRIAL PLANTS
- TILT/ACCELERATION MONITORING OVER WIDE AREAS
- STRUCTURAL / WALL INCLINATION
- RELATIVE SETTLEMENT MEASUREMENTS

ACCELEROMETER MODE

In acceleration mode, SENSEBOX7043-D acquires the acceleration data in micro-g level resolution with sampling rates up to 1000 sps. Built-in digital low pass filter automatically adjusts with the sampling rate to increase data quality within the frequency of interest.

TILTMETER MODE

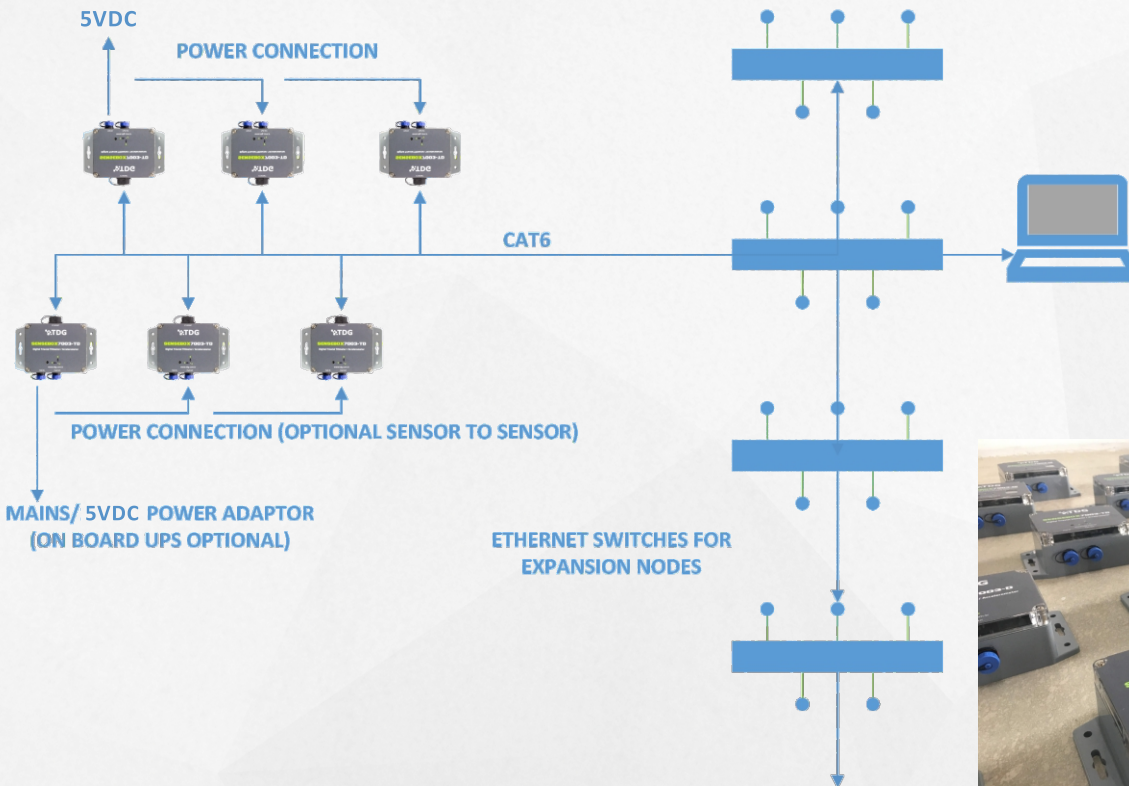
In tilt mode, SENSEBOX7043-D acquires the tilt data in micro-degree resolution. Sampling rate can be reduced to 1 sps with averaging enabled. Tilt data is only slightly affected by the temperature differences. A built-in temperature sensor is present, which allows temperature compensation in real time or by post processing.

MULTI-NODES / EASIEST CONNECTION BY ETHERNET

SENSEBOX7043-D utilizes the common CAT6 Ethernet as the connection and data transfer interface. There is no need for a central digitizer. The user can easily monitor the data in the computer software from many tilt/acceleration nodes spread over a wide area. Multi-directional structural movements can easily be acquired by this digital sensor architecture even when the distances between the sensors are higher such as in regional monitoring or large bridge spans.

Sensors can connect to a computer over a single line. Thousands of sensors can be monitored on a single computer and software by the help of ethernet hubs. TDG engineers will help you to analyze your project and offer the most effective solution architecture in a short time.

DEVELOPED %100 IN TDG LABORATORIES



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Technical Specifications

MODELS

Accelerometer Mode , Tiltmeter Mode (Software Selectable)
Additional Temperature Output (In Both Modes)

MEASUREMENT

Number of Axes
Sensor
Measurement Range
Sampling Rate
Frequency Range
Dynamic Range
Resolution
Nonlinearity
Cross Axis Sensitivity

ACCELERATION

3 (X, Y, Z) (Uniaxial and biaxial models available as 7041-D and 7042-D)
True-Integrated, Ultra-Low Noise, Seismic FBA Grade Accelerometer
±15g
100/200/500/1000 (Software Selectable)
DC-400Hz
160 dB
29 bit (2²⁴ counts / g, 32 Bit Data Output)
±0.03% (Max.) of FS
0.002 g/g

Number of Axis

TILT

2 Active Axis
(Use X & Y axes in horizontal orientation for best performance)

Resolution
Measurement Range
Temperature Drift

0.002 μ radian
±60 Degree
±0.005° /°C

COMMUNICATION

Interface
Network Options
Protocol
Synchronization
Storage

Ethernet 10/100BaseT
Compatible with standard or POE networks
TCP/IP or Reliable UDP with Data Loss Prevention
NTP (< ± 2.5 ms With Local NTP Server)
Micro-SD (Optional-Automatic storage when communication is lost)

POWER/ELECTRICAL

Power Input

UPS
Power Consumption

5V DC (Power Adapter Included)
Node to Node Power Link (Optional)
POE Adapter (Optional)
Optionally Included in the Power Adaptor
1.25 W Nominal @ 5 V DC

PHYSICAL & ENVIRONMENTAL

Shock Resistance
Dimensions

Connector Interface
Operating Tempertaure
Storage Temperature
Enclosure

1200 g
157.5 x 90 x 58.5 mm (Plastic)
152 x 112 x 55 mm (Aluminium)
IP67
-30°C ... +70°C
-30°C ... +80°C
Plastic, (IP67) or Aluminium (IP67)

CERTIFICATION

CE

Calibration

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

SOFTWARE

TDG Software

MONSTER
TDG Configuration Tool



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