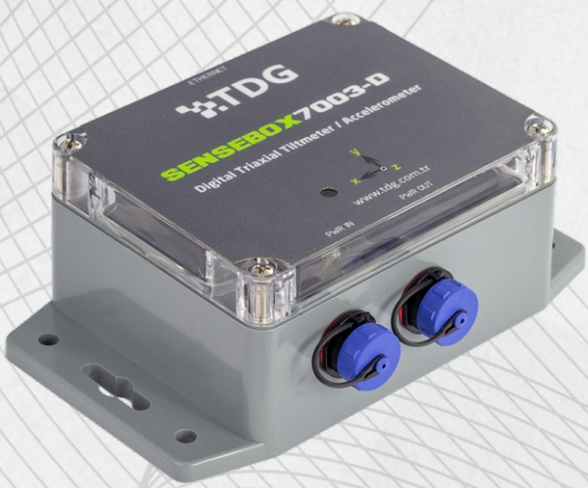
TDG

structural health monitoring

SENSEBOX7003-D

HIGH SENSITIVITY DIGITAL ACCELEROMETER / TILTMETER

"Digital, Practical, Precise Sensor Series"



CE ISO 9001 TURKMALI ®

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This high-resolution digital sensor brings both acceleration and tilt(inclination) measurements 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 simultaneoulsy. SENSEBOX7003-D includes a triaxial sensor that has been specifically developed for acceleration & tilt measurements and directly outputs digital data to the computer software.

Features

- 3 Acceleration/Tilt Components
- Direct Digital Output
- High Sensitivity
- Minimum Temperature Effects
- Built-in Temperature Sensor
- Easiest Connection By Ethernet
- Ideal Choice for Many Nodes over a Wide Area
- Sub Milli-G / Sub Mili-Degree Resolution
- Structural Health Monitoring Projects

Field Of Applications

- TILT/ACCELERATION MONITORING OVER A WIDE AREA
- STRUCTURAL / WALL INCLINATION
- BRIDGES / TUNNELS / VIADUCTS
- RELATIVE SETTLEMENT MEASUREMENTS
- STRUCTURAL HEALTH MONITORING
- STRENGTHENING AND RESTORATION PROJECTS
- HISTORICAL STRUCTURES
- INDUSTRIAL PLANTS

ACCELEROMETER MODE

In acceleration mode, SENSEBOX7003-D acquires the acceleration data in sub mili-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 freqeuncy of interest.

TILTMETER MODE

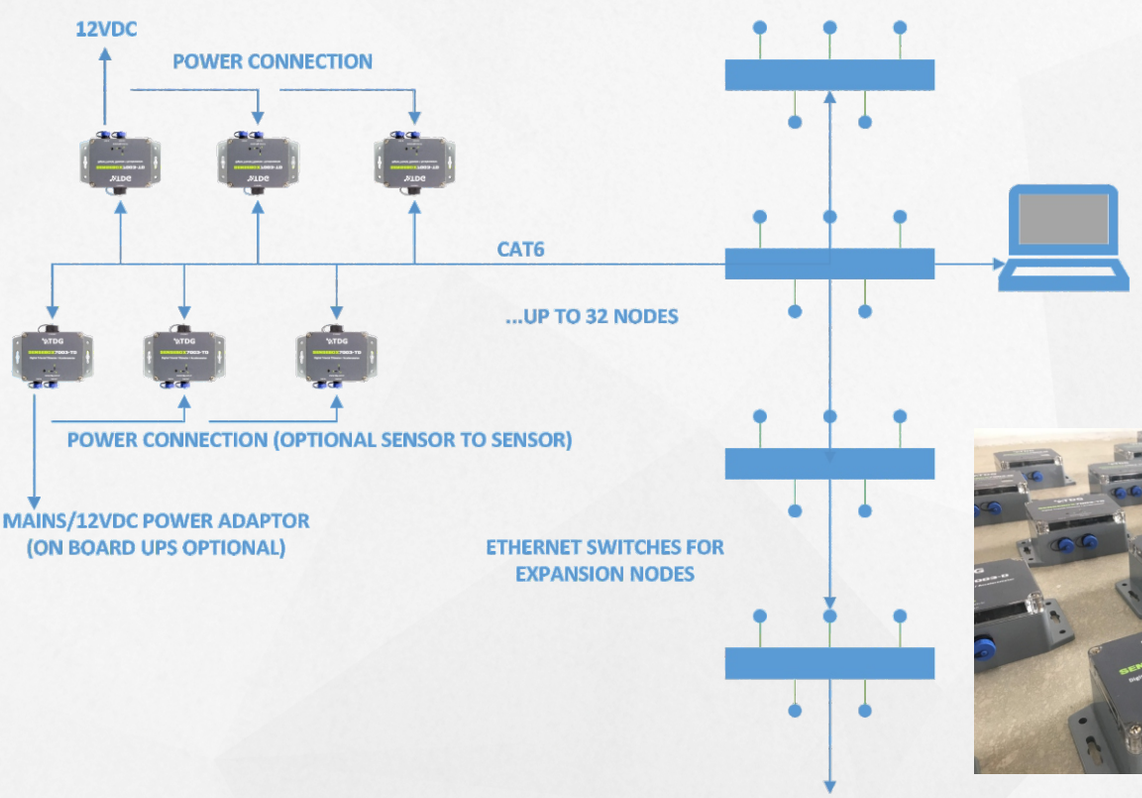
In tilt mode, SENSEBOX7003-D acquires the tilt data in sub milli-degree resolution. Sampling rate can be reduced to 1 sps with averaging enabled. The tilt data is only slightly affected by the temperature differences and a built-in temperature sensor is present, which allows temperature compensation in real time or by post processing.

MULTI-NODES / EASIEST CONNECTION BY ETHERNET

SENSEBOX7003-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.

Up to 32 nodes, 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



Teknik Destek Grubu Bilimsel Ölçme Ltd. Şti.
ODTÜ Teknokent Bilişim İnovasyon Merkezi
Mustafa Kemal Mah. Dumlupınar Bul. 280G B-Blok
D:214 Çankaya/Ankara / TURKEY
P : +90 312 473 97 91-92
info@tdg.com.tr
www.tdg.com.tr

Technical Specifications

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

MEASUREMENT	**ACCELERATION**
Number of Axes	3 (X, Y, Z)
Measurement Range	±2g, ±4g, ±8g (Software Selectable)
Sampling Rate	125/250/500/1000 (Software Selectable)
Frequency Range	DC-1000Hz
Dynamic Range	100 dB
Resolution	3.9 µG (@ ±2g Range)
Nonlinearity	0.1% FS @ ±2g
Cross Axis Sensitivity	0.01 g/g
	TILT
Number of Axis	2 Active Axis (Use X & Y axes in horizontal orientation for best performance)
Measurement Range	±90 °
Sampling Rate	1 sps with averaging (standard)
Temperature Drift	± 0.0012 °/ °C Typical
Resolution	0.00023 °

COMMUNICATION	
Interface	Ethernet 10/100BaseT
Network Options	Up to 32 Nodes on Single Computer via Ethernet Switch/Hub
Protocol	Reliable UPD with Data Loss Prevention
Synchronization	NTP (< ± 4 ms With Local NTP Server)

POWER/ELECTRICAL	
Power Input	8-20VDC (Typ. 12VDC) (Power Adaptor Included) Node to Node Power Link
UPS	Optionally Included in the Power Adaptor
Power Consumption	1.5 W Nominal @ 12 V DC

PHYSICAL & ENVIRONMENTAL	
Shock Resistance	1500 g
Dimensions	157.5 x 90 x 58.5 mm
Connector Interface	IP67
Operating Tempertaure	-30^{0}C ... +70^{0}C
Storage Temperature	-30^{0}C ... +80^{0}C
Enclosure	Plastic, IP67

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

SOFTWARE	
TDG Software	MONSTER TDG Configuration Tool

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