



### TEDS-A Smart Sensor Instrumentation



PCB® Piezotronics, Inc. is uniquely positioned in the sensor industry to satisfy a wide range of research, test, measurement, monitoring, and control applications. TEDS technology is brought to the industry by PCB.

The operation of TEDS is defined by IEEE P1451.4 which is an emerging standard defining the architecture and protocol for compiling and addressing non-volatile memory that is embedded within a sensor. Once programmed, the data resident to the sensor's memory can be downloaded and utilized in an automated test scenario. The stored, digital information has been labeled with the name TEDS (Transducer Electronic Data Sheet)

PCB piezotronics an active Member of IEEE committee involved in the development of TEDS are today the market leader of TEDS- smart sensor instrumentation

**Structural Solutions Private Limited** exclusively represents PCB Piezotronics, Inc., U.S.A in India. **Structural Solutions Private Limited** is a professional engineering company engaged in offering high end technology intensive products and system solutions to Indian industry for vibration measurements, simulation, analysis and calibration

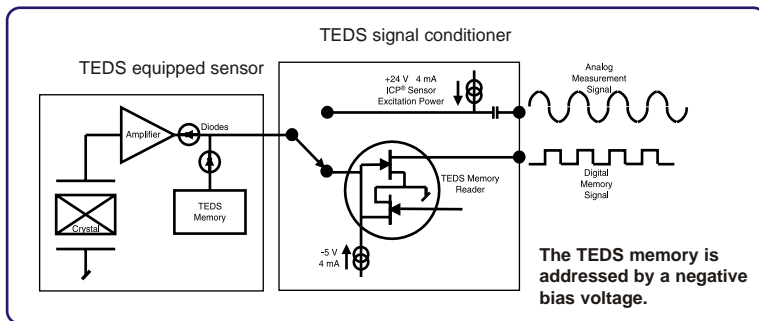


## TEDS

**TEDS is a Transducer Electronic Data Sheet**, containing a set of electronic data in a standardized format stored in a chip that can be embedded in a sensor for the purpose of identifying and describing the sensor in the network, thus maintaining critical sensor information, reducing paper work, providing better management of transducers, reducing user error, and saving time and money.

Sensors incorporating TEDS are mixed mode (analog/digital) that has built in read/write memory, which stores information relevant to the sensor and its use. The information in the memory is downloadable. The mixed mode design allows the transducer to operate in two different modes, **The Measurement Mode** and **The Digital Communication Mode**.

A suitable TEDS Signal Conditioner is used to access the memory digitally. The TEDS memory circuit is built into ICP Sensor alongside the conventional signal conditioner circuitry. A diode isolation scheme facilitates the switching between the ICP sensor circuit and the TEDS circuit as shown in the following circuit diagram :



When the sensor is forward biased ,it will function as a normal measurement device. When the sensor is reverse biased ,the TEDS memory becomes accessible. The TEDS signal conditioner serves to generate the reversed bias or negative voltage pulses. These pulses interrogate the memory whose content is then transmitted via the same two wires back to the signal conditioner. Once the data has been transferred from the sensor , the memory circuit is switched out and the sensor resumes normal operation.

The TEDS feature was designed with "plug n play" concept. A sensor simply needs to be plugged into a system, which can digitally read all of the pertinent information about the sensor.

#### Benefits of TEDS Technology:

- Transducers self identification
- Simplified trouble shooting
- Write/Retrieval of calibration data
- Multichannel testing
- Industry compatibility

The potential of TEDS promises to expedite multi-channel testing, route data collection and routine measurement tasks, while maintaining conformance to ISO 9001 and QS 9000 Standards.

#### Typical Transducer Electronic Data Sheet

ROM	ID No.	0E000 00015966905
Sensor identification Data	Manufactures ID	PCB
	Model Number	334C03
	Serial Number	9566
Sensor characteristics	Calibration Date	May16,2005
	Sensitivity mV/g	100
	Measurement range 'g'	± 50
	Frequency range Min 'Hz'	0.5
	Frequency range Max 'Hz'	2000
	Resonance frequency 'Hz'	12000
	Min Operating Temperature °C	- 53
	Max Operating Temperature °C	93°c
	Excitation Maximum 'mA'	20
	Excitation Minimum 'mA'	2
Response Time 'Sec'	0.8	
Applications	Sensor Location(x, y, z)	Z
	Component name	Compressor bearing driven end

## ACCELEROMETERS WITH TEDS

PCB offers a wide variety of TEDS accelerometers.

- Sensitivity range: 10mV/g to 1000mV/g
- Frequency range: 0.3Hz to 15 kHz
- Weight: 1.8gm - 15gm
- Measurement range:  $\pm 5g$  to 500g
- Temperature range:  $-55^{\circ}C$  to  $+120^{\circ}C$



## MICROPHONES WITH TEDS

PCB offers a wide variety of Microphones with TEDS

- Gain: - 0.08dB
- Frequency response : ( $\pm 0.1dB$ ) 5Hz to 126 kHz
- Size - diameter :  $\frac{1}{4}$ " ,  $\frac{1}{2}$ "
- Constant current excitation : 2 to 20 mA
- Excitation Voltage : 20 to 32 VDC
- Temperature range :  $-40^{\circ}C$  to  $85^{\circ}C$

Model 426B03



## SIGNAL CONDITIONERS WITH TEDS

PCB offers a wide variety of signal conditioners with TEDS. The recent generation of PCB signal conditioner standard or configured versions are equipped to handle TEDS sensor in addition to ICP and charge type. Optional modules are also available for multichannel switching, fixed/variable/ incremental gain, programable low pass/butterworth filters, RS - 232, RS- 485, IEEE 488 interfaces, internal & external calibration & function of read/write TEDS sensor data



## TEDS READ/WRITE PDA

TEDS PDA (Personal Digital Assistant) permits upload and download of TEDS data.

Model 400A75 is a fully functional Palm 105 PDA with 8 MB of RAM, adaptor and sensor cable providing read and write capability to the on board memory circuitry contained within a TEDS sensor, or in-line TEDS memory modules.

Model 400A75



## IN LINE TEDS MEMORY MODULES

A non -TED sensor model can be converted into TED "plug n play sensor". Models 070A70 and 070A71 are TED memory modules, which can be added in line with non TED sensor model, to construct a sensor system with TED functionality.

Model 070A70 features a BNC jack input connector and a BNC plug output connector. Model 070A71 features 10-32 coaxial jack input and output connectors.

ICP sensor excitation is passed through the units to the sensor, under reverse bias, the memory circuitry is activated for read write capability. The charge out put accelerometer and ICP accelerometer can be suitably converted in to smart sensor modules by using this inline TEDS memory module

Model 070A70



Complete range of Accelerometers, Microphones equipped with TEDS, TEDS memory modules & TEDS PDA will be offered in Rupees or in Foreign Exchange at competitive prices by **Structural Solutions Private Limited**

➡ For further product & application details please contact:

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