

# Department of Mechanical Engineering

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16

## Notice Inviting Tender

Sealed tenders are invited from reputed manufacturers / suppliers for the supply, installation, testing and commissioning of the Real Time **Four Channel FFT Analyzer** with Acoustic analysis capability (**Quantity 01 No.**).

1. FFT Analyzer suitable for measuring vibrations, impact signals in light weight structures.
2. The Analyzer shall be handy, robust, and compact in size & USB powered.
3. The Analyzer shall be capable for sound level measurements, frequency analysis, 1/1, 1/3, 1/N octave analysis, machine vibrations, building acoustic and modal analysis for future requirement.
4. The Analyzer shall be expandable to multiple channels for future requirements for Vibration, Noise, Impact Hammer, Voltage etc.
5. The instrument can be expandable to other engineering applications like non-contact vibration analysis (like beam forming), tracking analysis etc.
6. At present, Nos. Of Input Channel Required: 4 Channels extendable upto 128 channels.
7. The Analyzer shall have LabView Driver for the compatibility with Labview Software.

### 8. **Specifications:**

#### **Input channel:**

Resolution: 24 bits or better, Dynamic range: 110 dB, Real time bandwidth: DC...20 kHz or better, Sampling Rate: 51.2KHz, Random noise: <3  $\mu$ V(A), very small phase mismatch (<1° @ 20Hz ... 20kHz), adjustable offset and input coupling.

#### **Output channel:**

Resolution: 24 bits or better, Real time bandwidth: DC...20 kHz or better.

Note: Preference will be given for the instrument having larger bandwidth.

### 9. **Physical Characteristics:**

- Weight: not more than 1000gms
- Dimensions: Compact (approx: 250 mm x 150 mm x 30 mm)

10. The Analyzer shall be able to operate with any Windows-based PC, Laptop (or Tablet) with Windows 7 or higher via USB 2 or USB 3 interface.

### 11. **Analysis Software:**

At present, the Software shall have multi analysis features including:

- 1/3-1/N Octave + FFT Analyzer
- Sound Level Recorder
- Windows for: time signal, level, 1/N octave, FFT, Sonogram, Waterfall,
- Data export to MS Excel, UFF, wav, ASCII file formats
- Sound Level Meter IEC 61672 class 1
- Sensor error detection (detects cable breaks for ICP sensors)

### 12. **Scope of Supply:**

- a) Main instrument with Analysis Software & LabView driver.
- b) Four (4) Nos. ICP Accelerometers/displacement sensors, miniature, light weight (< 1gm), 100 mV/g sensitivity, 1 to 8k Hz, Aluminium housing, and having a minimum of 10-ft cable
- c) One (1) No. Modal Analysis Impact hammer, 8 kHz frequency range 500 lb, Amplitude range 10 mV/lb sensitivity. (of reputed brand like BNK, PCB etc)
- d) Four (4) Nos. Scope input adaptor with BNC plug, etc



