

MEMS Acoustic Sensor

MEMS Acoustic sensor is used to monitor the Acoustic Levels generated during the launch of a satellite launch vehicle. It is a piezoelectric, MEMS sensor with built-in electronics. MEMS technology enables miniature devices to be precision batch fabricated. The sensors work in harsh environments and can withstand Vibration test, Shock test, Humidity test, Temperature soak tests. It is the first indigenously developed MEMS sensor flight-tested in an Indian Launch Vehicle and has operational heritage of 12 successive PSLV flights.

Salient Features

- Bulk micro machined silicon diaphragm with Piezoelectric sense layer on Silicon
- Range - 100 to 180 dB (2 Pa to 20 KPa)
- Frequency Range - 31.5 Hz to 6.3 KHz in 1/3rd Octave centre frequencies
- Sensitivity- 150 to 200 $\mu\text{V}/\text{Pa}$
- Amplitude Linearity - 2 dB
- Frequency response - 3 dB
- Weight-120 grams
- Operating temperature range - -40 to +125°C
- System design done at ASCD/AVIONICS/VSSC
- Process design & fabrication at CEERI, Pilani
- Built in electronics and hence smart
- Elimination of external signal conditioners
- Reduction in cabling and ease of integration

