



The DECI AESMART 302A is a virtual instrument designed for Acoustic Emission testing of structures and processes that produce high density signals such as high pressure leaks and friction. In the latter category such processes as Head Disk Interference (HDI), metal cutting, grinding, and polishing all produce high density AE signals suitable for analysis by the AESMART 302A.

The hardware portion of the instrument detects, amplifies and splits into two frequency ranges the signals from an AE transducer coupled to the part to be inspected. These amplified and filtered signals along with the broadband signal and the Average Signal Level (ASL) of the high and low frequency channel's are output with BNC connectors on the front panel for observation with an oscilloscope.

The ASL signals are output via a ribbon cable to a National Instruments DAQ1200 PCM-CIA card. The ASL voltage of the high and low frequency channels is sampled, and a HF/LF ratio of these voltages is calculated. It is this ratio that is the primary factor used in analyzing the various processes mentioned previously. For example the data shown in the screen shows the HF/LF ratio observed from an aluminum plate that has been previously abraded with 180 and 600 grit sandpaper. A DECI SE900-MWB transducer coupled to the plate with petroleum jelly detected AE signals created by quickly rubbing with the index finger across the two abraded surfaces. The HF/LF ratio plotted as a function of time clearly shows the difference in roughness of the two surfaces. A report entitled "Measurement of Surface Roughness by Acoustic Emission Techniques" can be observed on our web page for those interested in more detail concerning this technique.

AESMART

MODEL 302A

U.S. Patents #5,714,687 and #5,929,315 - additional patents applied for and pending.

The AESMART Model 302A is an economical alternative to the AESMART model 2000 for those who are primarily interested in Tribology, Head disk interference (HDI) measurements, metal cutting, grinding and leak detection.

FEATURES

- Power all DECI integral transducers and MINI-P preamplifier.
- 20Khz-1Mhz broadband signal out.
- 20Khz-60Khz bandpass signal out (LF).
- 100Khz hi-pass filtered signal out (HF).
- Average signal level (ASL) of both HF and LF channels.
- 40dB fixed gain, 20dB variable gain.

OPTIONS

- Ribbon cable output to laptop computer.
- PCMCIA board and DECI-2 software for data analysis.



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