

Product Line Highlight

FieldCal Acoustic Emission Hand- held, Battery Powered Signal Generator

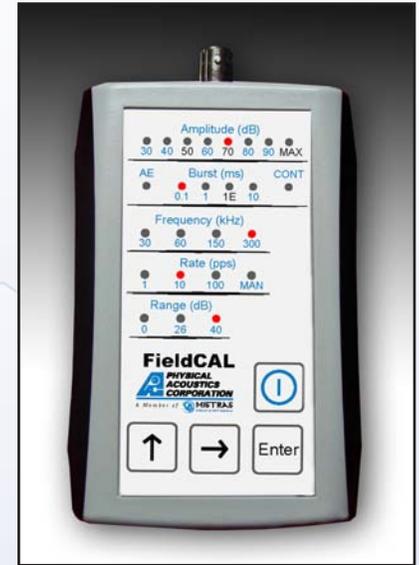
Meet FieldCAL, our newest unit allowing you to produce all the Acoustic Emission signals necessary to verify the correct operation of AE Sensors, Preamplifiers and AE Systems.

A low cost, small hand-held battery powered AE signal generator, this unit can produce all the AE signals necessary to verify the correct operation of AE sensors, preamplifiers and AE systems. Five different waveforms are pre-programmed into the unit including Standard AE

Waveforms, 3 Tone Bursts and continuous sine waves. Output amplitude can be set in 10dB increments from 30dB to 90dB, with a choice of four different frequencies covering the AE range. The output level of the FieldCAL is adjustable to the signal level of an AE sensor, a 26dB or a 40dB preamplifier.

The FieldCAL unit operates for approximately one month of daily use on two standard AA batteries. The membrane switch overlay protects the system from dirt and grime in the field and LEDs allow for easy use in low light environments.

[CLICK HERE](#) for a specification sheet.



Featured Application

Pilot Project Reaches Another Milestone Acoustic Emissions Testing Applied to Containerships

A pilot project that started three years ago to test the commercial application of acoustic emissions technology in the marine industry, has reached another milestone. Testing, which initially took place on an ATC double hull TAPS trade tanker, has been completed on a containership.

The AE inspection and analysis of data was performed by Richard Gostautas, Infrastructure Group Manager and Sam Ternowchek, Vice President On-line Asset Integrity Monitoring for MISTRAS Products & Systems Division who started on the initial project.

The containership had sensors placed on board to monitor and detect cracks using this form of non-destructive testing. Sensors can electronically detect rapid stress-releasing events, such as the



release of elastic energy in materials, which then become an elastic wave. These emissions or waves are closely associated with the dislocation movement accompanying plastic deformation and the creation and growth of cracks in a structure under stress.

Acoustic emission has been commonly used in the onshore storage tank and nuclear and pipeline sectors to detect cracks and corrosion. It wasn't until two years ago that acoustic emission technology was used in the marine environment with American Bureau of Shipping (ABS) spearheading a pilot program.

According to George Wang, ABS Senior Managing Principal Engineer, Operational Safety & Evaluation, the application to ships and other marine structures such as offshore rigs, has been exciting and heralds in a new era for the way class societies identify critical areas within a structure, therefore refining the survey process.

"This study and its findings could lead to more effective survey methods and feed into a more holistic life cycle approach for the operation and maintenance of a vessel," he added.

Wang, who helped place the sensors on the first tanker test vessel, says both fixed wiring and wireless sensors were used in the testing. Fifty acoustic emission sensors were placed on the vessel with particular attention to hatch corners, selected locations on longitudinal bulkheads, deck longitudinals and the forepeak void space.

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Acoustic Emissions Testing Applied to Containerships (continued)

“This is the first time continuous monitoring of crack growth on hatch corners of a containership has taken place,” said Wang. Although the voyage test period is over, he says monitors are still on board to collect data continuously for a full year.



The testing took place over a three week period on the well-traveled trans-Pacific route. During this time Wang and his team were able to gather data to be considered realistic and reflective of operational conditions.

“It appears that acoustic emission technology is a valid and practical way of identifying potential fractures in a structure,” said Wang. “We now have two parallel ways of assessing a ships’ structure: our traditional method based on fatigue analysis which relies heavily on assessing the loads and the alternative method of acoustic emission to identify fractures and using fracture mechanics to provide assessment.”

He points out that the study showed that containerships are quite different from tankers in terms of acoustic noise. “Since a containership flexes quite a bit because of its large hatch and the nature of its design, we pick up a lot more noise from the sensors than we did on the tanker,” said Wang. “What is a key for us is that we differentiate between a stress-driven problem and the regular operational static that gets picked up from the sensors.”

Wang says this further validation of acoustic emissions by applying it on a containership is another milestone in the pilot program.



Formed in 1992, the RC&A group is driven by the need to support our customer requirements in engineering and application. This group has now grown to become respected by our customers as an important part of the MISTRAS team.

The accomplishments in RC&A have led to many innovations in the field of Acoustic Emission, Ultrasonic and Resistivity science.

Research

Dr. Valery Godinez has been promoted to Director of Research Contracts and Applications (RC&A) for MISTRAS Products & Systems.

Dr. Godinez has played a key role in the research and development of Acoustic Emission, Ultrasonics, Eddy Current, Acousto-Ultrasonics and Thermography. He holds a PhD in Ultrasonics from Ohio State University along with a M.Sc. Welding Engineering/NDE and a B.Sc. Physics.

Next Issue

Sensor Highway II
Transformer Monitoring
Composites Monitoring



Acoustic Emission Training Courses

Princeton Junction, NJ - USA

AE Level I General
PACwin Suite

October 26-30
November 17-19

Upcoming World AE/ NDT Events

Circuit Breaker Conference • Atlanta, GA	October 5 - 9
ICUEE Exposition - Louisville, KY	October 6-8
ASNT Fall Conference • Columbus, OH	October 19 - 23
AEWG Conference - Sturgeon Bay, WI	October 19 - 21
Middle East NDT Conference - Kingdom of Bahrain	November 8-11
SAMPE LA Chapter Seminar - Los Angeles, CA	November 17

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