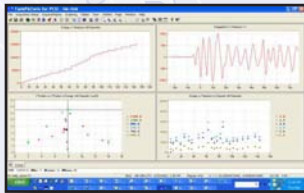


## PAC Introduces...

### **USB Acoustic Emission (AE) Node: Easy Laptop & PC Connection and Low Cost Acoustic Emission System**

The USB AE Node is a single channel Acoustic Emission (AE) Digital Signal Processor with full AE hit and time based features, including waveforms. Through the USB Connector, the AE Node is easily interfaced to a Notebook or PC running Windows XP™ or Vista™ and Physical Acoustics Corporation (PAC) well known AEwin™ or AEwin Lite™. Up to 4 AE Nodes can be controlled by one Notebook or PC.



The AE Node can accept single ended or differential sensors amplified by an internal low noise preamplifier. Additionally, PK Series low power integral preamp sensors can be used for long distance connections.

## SteamPAC™

### **Steam Valves and Steam Trap Leak Detection & Assessment:**

SteamPAC™ is a technology package with a powerful formula for estimating leak rates. It is typically used in nuclear and fossil fuel plants to survey the entire inventory of steam valves and traps while they are in service. According to Power Magazine, "Testing valves for leakage costs little but can save a lot. Energy drops across many valves exceed 1,250 Btu/lb, and leakage rates can be higher than 1,000 lb/hr. In a plant burning fuel priced at \$5 to \$10 per million Btu, a single valve with a modest leak can account for \$50,000 to \$100,000 in lost fuel costs annually. That's at least an order of magnitude greater than the \$3,000 to \$6,000 cost to replace it."



*The Only Hand-held Through-Valve Leak Detection & Quantification System*

## Talk to us...we "hear" you: Periodic Management Perspective



It is with pride that in September 2008, I completed my 38 years in Acoustic Emission (AE) R&D, sensors and systems and applications. Since our days at Bell Labs, we have strived for excellence in AE Innovation

that combines AE sensors and systems sophistication at affordable prices. My colleague, Mark Carlos, 34 years in AE, has taken over the day-to-day operations of Physical Acoustics Corporation (PAC) as its President and our other Bell Labs colleague, Sam Ternowchek leads in AE Services and Online Systems. We are indeed very proud to have such partners worldwide as Phil Cole in the UK, Dr. Jean-Claude Lenain in France, Dr. Victor V. Shemyakin in Russia; Dr. Shigenori Yuyama in Japan; Pedro Feres in Brasil; Dr. Adrian Pollock and Ed Lowenhar in Princeton, NJ; Mauricio Calva in Philadelphia, PA; Nasso Anastasopoulos (NOESIS Reader) in Athens and Dr. Ron Miller in Cincinnati, OH. This very talented pioneering team in AE accounts for over 400 years of AE experience and is supported daily by another young staff of 20 PhD's and

numerous MS's doing research in materials, sensor development, on-line plant asset monitoring, wireless sensor fusion systems, bridge and transformer monitoring and so many other exotic applications such as E. coli bacteria growth. PAC is also in the unique position of AE Training & Certification for all NDT levels. Creating tomorrow's AE practitioners is a life long duty and accomplishment of Dr. Pollock, a true AE professor! Please e-mail any of us as we are ready to "listen" to AE applications and most importantly your needs and suggestions. PAC is a member of the technology center for MISTRAS (my home town in Greece) Group, Inc. While the MISTRAS Group has more than 1,700 employees worldwide, PAC AE accounts for more than 300 professionals, scientists and technicians over the world. We have avoided financial disaster over the past 40 years by divesting to other areas of NDT when more than 25 companies have closed their doors to AE instruments/service. Rest assured that we always invest and remember our AE roots! We want to thank you, the customer, the root of our tradition!

*Dr. Sotirios J. Vahaviolos*  
 AE Designer/Practitioner & Chairman

Steam valves can be extremely costly in terms of product quality, safety and energy loss when they leak or fail. Based on the way that a particular valve works our AE instrument makes it easy while valves are on-line.

How AE emits on steam traps can either be defined as continuous (or modulating continuous) flow and on-off types. SteamPAC™ helps an inspector readily identify the trap operation in all types of environments. Inspectors can choose from simple "point and shoot" analog instruments to sophisticated digital instruments with on-board sound recording and data logging features. The PAC system has a unique frequency tuning feature that enables the user to literally tune into the trap sound and clearly identify leaking or blowing traps.

## Application Update

### Steel Bridge Monitoring with our AE Sensor Highway II

Since the early 1990's bridge monitoring using AE has been investigated by the Federal Highway Administration (FHWA) who still continues to fund development, testing and demonstrations on the use of AE for bridge inspection and monitoring. We have been awarded several FHWA contracts since the late 1980's and successfully continue to monitor numerous bridges throughout the United States.



We have the technology available for Bridge Health Monitoring and are ready to team up with Bridge Operators and Owners to prevent catastrophic failures from naturally occurring structural flaws that are the result of aging infrastructure.

Our Sensor Highway II™, an Acoustic Emission (AE) monitoring system with up to 16 high-speed channels and 16 parametric input channels, is designed for unattended use in Structural Health Monitoring management and condition monitoring applications for aging infrastructure. The key feature of the Sensor Highway II System™ is its highly flexible sensor fusion interface for input and processing using a variety of sensors. To learn more about Online Bridge Monitoring, contact us at 609-716-4000.

## Research

### MISTRAS Receives Significant Award for Infrastructure Research

The National Institute of Standards and Technology (NIST) has awarded MISTRAS Software and Systems and its university partners with a \$6.9 million research award under their new Technology Innovation Program (TIP) for the development and research of advanced technologies to enable monitoring and inspection of the structural health of bridges, roadways and water systems.

With 25 percent of bridges rated as structurally deficient in 2007, MISTRAS and its partners plan to develop a system for continuously monitoring the structural health of bridges using wireless sensors that obtain energy to power from their structural vibration and wind. The Self-Powered Wireless Sensor Network for Structural Bridge Health Prognosis project will assemble data from a variety of sensors and interpret them through damage assessments and reliability algorithms.



Deep stringer crack from defective weld detail in steel bridges

## Q & A

In each issue of PAC News we feature a Question & Answer Column. If you have a question referring to Non-Destructive Testing technology or products that you would like to see addressed please email to:

sales@pacndt.com  
Attention: Q&A Editor

"The outcome of the project will be a breakthrough in the structural health monitoring area," said Dr. Didem Ozevin, Research Scientist for MISTRAS and Principal Investigator to the NIST TIP project. "I strongly believe through the collaboration and specialized expertise of MISTRAS' Physical Acoustics Corporation and our research partners, the University of Miami, the University of South Carolina and Virginia Tech, we will accomplish the goals of such a high visibility research project within the projected time frame."

Along with MISTRAS, eight other awards were given to various businesses through TIP, which was created to support innovative research in areas of critical national need. Over the next five years, the awarded projects will create up to \$88.2 million in new research on structure monitoring and inspection technologies, with \$42.5 million potentially being funded by TIP.



### Acoustic Emission Training Courses

Princeton Junction, NJ Location:

AE Level III	August 3-7
AE Level II	August 17-21
AE for Scientists & Engineers	October 6-8

### Acoustic Emission Technology Workshop

A **FREE** Workshop with an overview of AE Technology & how it can support your application.

Raleigh, NC	June
Toronto, ON	July
Calgary, AB	July
Seattle, WA	August



## Upcoming World AE/ NDT Events

Environmental Trade Fair and Conference • Austin, TX	May 12-14	GO-EXPO 2009 • Calgary, AB	June 9 -11
SAMPE 2009 • Baltimore, MD	May 18 - 21	International Bridge Conference '09 • Pittsburgh, PA	June 14 - 17
ICPIIT XI Conference 2009 • Houston, TX	June 3 - 5	ChekWorks Users Group( CHUG) • Sanibel Island, FL	June 23 - 26

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