

Product Highlight

Micro II: The Versatile, Convenient Solution for Field Testing

It is important for AE users working out in the field to have a portable multi-channel AE system that is not only small and convenient but rugged and reliable providing high performance during all field testing.



MISTRAS Products & Systems has come up with a solution - the Micro II, the second generation compact, high (channel) density, portable AE system which has been designed to operate real-time with a notebook computer, or stand-alone with the connection of a keyboard, mouse and monitor.

The compact chassis holds up to 4, PCI cards which allows for high AE channel counts (32 channel SAMOS, 12 channel DiSP, and 8 channel PCI-2) in a small, portable chassis with an embedded, high performance, PC computer. The internal PC computer allows the Micro-II Chassis to operate as a bench top system when a keyboard, mouse and monitor are attached, or the system can be run from a Notebook computer operating in Remote Desktop mode through the Gigabit Ethernet interface, for direct control using the notebook's keyboard, mouse and monitor.

The main advantages of this chassis for AE users, is its small size, offering convenient portability for Multi-channel AE systems, its rugged, industrial design offering reliability out in the field, its ability to be run by a notebook computer, which is a convenient way to run an AE test (and later perform replay analysis), and the high performance embedded PC computer allowing you to use the system as a bench top system, and providing high speed AE data acquisition and analysis performance.

Featured Application

Strain Gauge Module for Sensor Highway: A Sensor Fusion Strategy on Infrastructure

The Sensor Highway II Monitoring System is one of the solutions offered by MISTRAS for the monitoring of large areas in structural health monitoring management and condition monitoring applications. It is an AE monitoring system with up to 16 high speed AE channels and 16 standard parametric sensor input channels (expandable to over 100).

To meet growing demand, MISTRAS is now offering their own Strain Gauge Conditioner for use with the Sensor Highway II. Each Strain Gauge Module is capable of processing up to four attached strain gauges at up to 100SPS. It is possible to daisy chain four of these modules in one Sensor Highway II system, to read up to 16 strain gauges per

Sensor Highway II. This is a very useful sensor technology for a technician to have in their AE system, as it offers an unprecedented chance to correlate strain and AE events together in one dataset. This goes a long way in helping the technician to determine two key things: whether their specimen under examination is damaged, and if it is damaged, which stresses are causing this damage.



Even in the absence of AE recordings, the new Strain Gauge Module is a very useful tool in its own right for determining overall structural fatigue.

In the News

MISTRAS Group, Inc. Awarded \$3.4M Contract from the California Department of Transportation

MISTRAS Group, Inc. announced that it has received a continuous on-line Structural Health Monitoring System contract valued at \$3.4 million to be installed on the San Francisco Oakland Bay Bridge. MISTRAS will be the prime contractor for the project, responsible for the sensor and system manufacture, installation and implementation, and providing 24/7 remote health monitoring.

The bridge, which opened in 1936 and has one of the largest spans in the world, currently carries approximately 250,000 vehicles per day. The contract is in response to a fatigue defect that was found on a structural steel beam in a regularly scheduled inspection during the 2009 Labor Day closure. The monitoring system is a proactive and effective response to address safety, and supports CALTRANS reputation as the world's most progressive DOT operator.

[CLICK HERE](#) to read more about the recently awarded contract to MISTRAS.

Spotlight

Terry Tamutus Speaks on Structural Health Monitoring and Inspection

Having extensive involvement and experience with structural health monitoring and inspection, MISTRAS' presence is consistently requested at industry organizations, universities, US Government agencies such as DoD, FAA, NASA, FHWA and companies including Boeing, Seagate, Power Generation and Refineries. Terry Tamutus, Director of Infrastructure Business Development, recently spoke at the Golden Gate ASNT Section on bridges and various structural health monitoring and inspection, focusing on acoustic emission, automated ultrasonics monitoring and inspection applications.

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Research

Improving Wireless AE Performance

MISTRAS continues to grow their expertise in deploying Wireless systems (such as our 1282 Wireless AE Node). It is important to assure the most reliable operation of wireless applications. To that end, they have developed a Signal Strength analysis software program for use with wireless installations. The Signal Strength software can be operated from the wireless base-station or from a separate walk-around notebook computer (as a pre-installation survey tool).

The Signal Strength monitor allows MISTRAS to select a wireless channel for analysis, turning off all the others and analyze that single node in terms of reception strength. By monitoring from the base-station, they can move the wireless node or its antenna or even replace the antenna with a higher gain unit to find the strongest signal strength location. The absolute signal strength reading from 0 - 60 dB allows them to quantitatively find a position where the strength is maximized. By finding a location within the monitoring area that is 45 or 50 dB, rather than one, which is just barely acceptable at 20 dB, gives the user confidence that this position will provide a very reliable wireless link. Going from one wireless node to the next, and docu-

menting the final signal strengths for each wireless node in the application, allows MISTRAS to be very confident in the final wireless network. The Signal Strength program is even capable of being used remotely to verify that the signal strengths remain high under the different environmental conditions.

MISTRAS has successfully tested this new signal strength software several weeks ago in a plant that used 9 wireless nodes and a base-station. With the software, they were able to find a defective antenna cable and locate all the nodes with high signal strength readings. Some wireless nodes were over 1000 feet (330 meters) from the base-station. At 2.4GHz transmission, this is pretty impressive. The signal strength software turned the installation application from an uncertain trial by error one, into a high confidence solution where the signal strengths have been documented and a larger safety margin is present.

MISTRAS customers are very happy with the wide range of wireless product offerings. The new signal strength software is a complement to the product line with its use as a survey, installation and diagnostic tool supporting wireless field deployments and increasing operational reliability.

Featured Application

Efficient Operation of Coal Fired Power Plants

With older coal fired power plants being expected to provide cleaner power, design basis alone is not enough to reliably control combustion. Operators are tasked with simultaneously reducing stack emissions and increasing production and reliability; a challenge, at best.

MISTRAS Products & Systems' Coal Flow Monitoring (CFM) System provides the information needed to make an informed decision on the effects and changes in flow or burner nozzle imbalance as part of a patented method. This is a non-invasive coal flow monitoring system that can assist coal-fired facilities in reducing costly out of compliance events.

Based on Acoustic Emission (AE) technology,



CFM monitors changes in flow and particle size as it impacts the feeder tube and unique, proprietary analysis evaluates the Coal Flow Factor as it changes over time. Unlike other technologies, Coal Flow Factor can detect, identify and differentiate between roping and other adverse changes.

Read all about our Coal Flow Monitoring (CFM) System and how it may increase efficiency and decrease greenhouse gas emissions online in the May 2010 issue of IndustrialGHG.com!

Spotlight (cont'd)



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As a Level II, Terry has been involved in NDT applications for the past 19 years working in R&D, applications, field testing, training and manufacturing/instrumentation design with MISTRAS.

In the past two years he has presented at Chicago, Cleveland, Pittsburgh, Philadelphia, Eastern Washington, North Texas, Norfolk, Mohawk-Hudson, Miami-River Valley, Old Dominion and Chattanooga ASNT Sections. health monitoring and inspection, focusing on acoustic emission, automated ultrasonics monitoring and inspection applications.

For more information or to schedule a visit, contact Terry at terry.tamutus@mistrasgroup.com.

Upcoming Events

Worldwide AE & NDT Events

September 8-10 2010 - Vienna, Austria
EWGAE 29TH EUROPEAN CONFERENCE

September 20-23 2010 - Albuquerque, NM USA
ATA NDT FORUM

November 9, 2010 - El Segundo, CA USA
SAMPE MANUFACTURING MEETING

November 15-19 2010 - Houston, TX USA
ASNT FALL CONFERENCE 2010

AE Training Courses

Provided by:  **MISTRAS**
NDT TRAINING INSTITUTE

September 21-23 2010 - Princeton Junction, NJ USA
AE FOR SCIENTISTS & ENGINEERS

October 18-22 2010 - Princeton Junction, NJ USA
AE LEVEL I GENERAL

November 9-11 2010 - Princeton Junction, NJ USA
AE SOFTWARE (PACWIN SUITE)

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