MISTRAS

PRODUCT DATA SHEET

DaisAE System

Structural Health Monitoring System

OVERVIEW

The DaisAE is an advanced acoustic emission (AE) system designed to provide a cost-effective, reliable, outdoor solution for structural health monitoring (SHM) applications. The remote system—complete with data management and smart analysis capabilities—is a powerful monitoring tool for suspension bridges, cable bridges, pipelines, high-mast light towers, tank bottoms, transformers, and more.

The DaisAE uses system-on-a-chip technology (SoC) and Power over Ethernet (PoE). SoC allows for less power, lower cost, and higher reliability than the multichip systems that they replace. Since PoE allows the DaisAE to use a single Ethernet cable for power, communication, and time synchronization, the system reduces cabling and installation time and optimizes communications. Using a built-in Ethernet switch, multiple units can be connected in a daisy-chain fashion, or any other possible network configuration. These new technologies are non-proprietary, and are set to become the industry standard.

VERSATILITY

The DaisAE is an adaptable system, with configuration options designed to meet specific customer needs. The two basic configurations are:

1) 1-channel, multiple-node PoE configuration that can link multiple DaisAE nodes to form an AE system with a large number of channels. Sensors can be chained with one PoE cable over long distances with each node separated by up to 100 meters. This configuration is particularly useful for pipeline leak detection and wire break monitoring on suspension, cable stay, and post-tension bridges.

2) 2-channel, multiple-node PoE configuration which is similar to the previous configuration, but with two AE channels on each node. This configuration is convenient for tests where multiple sensors are required within a small area, including pressure vessel testing, tank bottom testing, and transformer partial discharge detection.

To request a live demo of the DaisAE or any of MISTRAS' other SHM systems, call 609-716-4000 or visit www.mistrasgroup.com.

AE SPECIFICATIONS:

Number of AE Channels: ..... 1 or 2
Frequency Bandwidth: ..... 5 kHz – 1 MHz
Analog Filter: ..... 2 high pass and 2 low pass / channel
Digital Filter: ..... 500 FIR filters
Sample Rate: ..... 10 MSamples/second
A/D Resolution: ..... 18 bits
Hit Waveform: ..... 1K – 15K Samples/hit
Auto Sensor Testing: ..... Yes

AE FEATURES:

Time of arrival; Amplitude; Energy; Rise Time; Duration; Counts; ASL; RMS; Absolute Energy; Threshold; Counts to Peak; Average, Reverberation, Initiation, and Peak Frequency; Signal Strength; Frequency Centroid; Partial Power 1 – 4.

POE SPECIFICATION:

PoE Voltage: ..... 20– 57 volts
Power Injector Capability: ..... up to 4 nodes
Power Hub Capability: ..... 2 strings w/ 8 nodes each
PoE Cable: ..... Cat 6, use 23 AWG for long runs
Power Hub Cable: ..... Multi-mode optical fiber, ... Single Mode, Cat 6

PHYSICAL SPECIFICATIONS:

Flash Memory: ..... 32 GB
Phantom Power Voltage: ..... 5 volts
Backup Battery: ..... Option (2 W)
Operating Temperature: ..... -40° F to 140° F
Power Requirements: 5W
Box dimensions: ..... ~8x5x2.5 in (~200x125x62 mm)
Box IP Rating: ..... IP 66

OPERATING SPECIFICATIONS

	1 Channel Multi-Nodes with POE	2 Channel Multi-Nodes with POE
Part Number	1286-5015-501	1286-5015-502
Number of AE Channels	1	2
Number of PoE Ports	2	2
Number of External Connectors	1 Gland, 2 RJ45 Outdoor	2 Glands, 2 RJ45 Outdoor
Use of PoE Injector or Hub	PoE Injector or Hub	PoE Injector or Hub
Maximum Drivable Number of Nodes per PoE Injector	4	4
Maximum Node Distance	100m	100m
Maximum PoE Hub Distance	500m for multi-mode fiber cable	500m for multi-mode fiber cable
Time Sync between Nodes	Standard	Standard
Supported Sensor & Preamplifier	5V integral preamplifier sensor, e.g. PKxxl, ISPKxxl, or non-integral preamplifier sensor, e.g. Rxxa, with 5V low-power preamplifier	
Auto Sensor Testing per Channel	Standard	
Internal AE Connector Type	SMB Male	
6 AA NiMH Internal Battery for 1 Hour Emergency Backup	Standard	
Control Computer	Any computer with Windows 7, 8, or 10 installed	

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