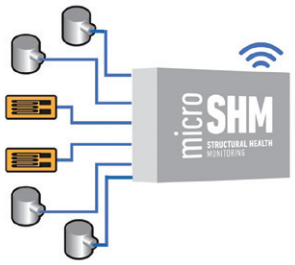
MISTRAS

PHYSICAL ACOUSTICS

PRODUCT DATA SHEET

Micro-SHM

Structural Health Monitoring System



Shown with 4 AE channels and 2 strain gages and Wi-Fi (optional)

OVERVIEW

The Micro-SHM is a standalone acoustic emission (AE) system designed to provide a cost-effective, reliable, indoor & outdoor solution for structural health monitoring (SHM) and process monitoring. It is ideal for isolated objects, such as bridge components, pressure vessels, pipelines, slow-speed bearings, and machine monitoring. The remote system is a powerful monitoring tool, with data management and smart analysis capabilities, complete with multiple AE and parametric data recording.

The Micro-SHM uses system-on-a-chip technology (SoC), and either Power over Ethernet (PoE) or wireless configurations. SoC allows for less power, lower cost, and higher reliability than the multichip systems that it replaces. Since PoE allows the Micro-SHM to use a single Ethernet cable for power, communication, and time synchronization, the system reduces cabling and installation time and optimizes communications. Wi-Fi or cellular options are available for wireless remote monitoring.

VERSATILITY

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

1) PoE configuration with 4 channel AE and 2-channel parametrics that can be set up for either voltage or strain gauge input. A Cat 6 cable (up to 100 meters) can be used to connect the Micro-SHM to a computer to conduct the monitoring, with data and power traveling through the same cable.

2) Wireless configuration with the same AE and parametric configuration as the standalone PoE model, but can interface with a computer through a Wi-Fi or cellular connection.

To request further information and technical details of the Micro-SHM or any of MISTRAS' other Acoustic Emission systems, call 609-716-4000 or visit physicalacoustics.com.

AE SPECIFICATIONS:

Number of AE Channels: 4
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
Internal AE connector Type: ..... SMB Male

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; Normalized Amplitude (NormA).

DATA STREAMING:

Number of Parametric Channels: 2
Parametric Bandwidth: ..... 0 – 100 Hz
Parametric Sample Rate: .....10 KSamples/second
Parametric A/D Resolution: ..... 16 bits
Parametric Type: .....Voltage and strain gauge
Voltage Input Range: ..... 0 – 4 V
Voltage Amplifier: x1
Strain Gauge Bridge Conditioner: ..... ¼ Bridge
Strain Gauge Amplifier: x100, x400, x500
Internal Parametric Connector: .....Terminal block

PHYSICAL SPECIFICATIONS:

Box IP Rating: ..... IP 66
Box Dimensions: .....~8x5x2.5 in. (~200x125x62 mm)
SSD Memory: .....32 GB
Phantom Power Voltage: .....5 volts
Operating Temperature: .....-40° F to 140° F
Power Requirements: 6W
1-hour Backup Battery: .....Optional (2 W)
LED Alerts (Normal/Warning/Alarm): .....Standard
Digital I/O (2 in and 3 out): ..... Optional
Control Computer: .....Windows 7, 8, or 10-compatible
Supported Sensor & Preamplifier: .. 5V integral preamplifier .....sensor or general sensor ..... with 5V low power preamplifier

KEY CONFIGURATION PART NUMBERS

	Part Number	Description
	Network Options	
Ethernet/Wi-Fi	1286-5015-524	802.11 A/B/G/N, RJ45 Gigabit
	Power Options (1 required)	
PoE Power (Indoor)	1286-5065	24-57V PoE
AC Power (Outdoor)	1286-5055	110/220VAC
DC Power (Outdoor)	1286-5075	9-36VDC
	Other Options	
Cellular Modem	1286-5085	4G LTE
I/O Cable	1286-4017	Digital I/O

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