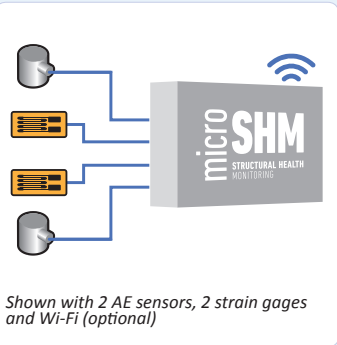


# Micro-SHM

## Structural Health Monitoring System



### 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 1 or 2-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 a live demo of the Micro-SHM or any of MISTRAS' other SHM systems, call 609-716-4000 or visit [www.mistrasgroup.com](http://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  
 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.

### PARAMETRICS:

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): ..... Optional  
 Digital I/O (2 in and 3 out) ..... Optional  
 Control Computer ..... Windows 7, 8, or 10-compatible  
 Supported Sensor & Pre-amplifier .... 5V integral preamplifier  
 ..... sensor or general sensor  
 ..... with 5V low power preamplifier

### KEY CONFIGURATION PART NUMBERS

	Part Number	Description
Network Options		
Ethernet	1285-5015-512	RJ45 Gigabit
Ethernet/Wi-Fi/GPS	1285-5015-522	802.11 A/B/G/N
Power Options (1 required)		
PoE Power	1286-5065	24-57V PoE
AC Power	1286-5055	110/220VAC
DC Power	1286-5075	5-12VDC
Other Options		
Battery Backup	1286-5045	1 hour
Cellular Modem	1286-5085	4G LTE
LED Alerts	1286-5095	Normal/Warning/Alarm



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