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.

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: ................................0.25 Bridge
Strain Gauge Amplifier: .....................................................x100, x400, x500
Internal Parametric Connector: ........................................Terminal block

PHYSICAL SPECIFICATIONS:
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
Hit Waveform: ........................................................1K – 15K Samples/hit
Auto Sensor Testing: .........................................................Yes
Internal Parametric Connector: .........................................Terminal block

KEY CONFIGURATION PART NUMBERS

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<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1285-5015-522</td>
<td>RJ45 Gigabit</td>
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<td>1286-5015-522</td>
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<td>4G LTE</td>
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<tr>
<td>1286-5095</td>
<td>Normal/Warning/Alarm</td>
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