Piezoelectric dynamic pressure sensor
Model 522M37A

Key features
- +986°F (+530°C) operation; +1040°F (+560°C) intermittent operation
- Small dynamic pressure measurements even under high static pressure
- Balanced differential output
- Hermetically sealed
- Integral hardline cable
- All Inconel and stainless steel construction

Description
Meggitt model 522M37A is a high quality piezoelectric pressure sensor designed to measure small dynamic pressure fluctuations, even in the presence of high static pressure. The sensor can also operate at very high temperatures; up to +938°F continuously and up to +1040°F intermittently.

Model 522M37A features an all welded, Inconel and stainless steel construction with a metal-sheathed, mineral-insulated integral hardline cable. Output is via an integral three-pin (one pin not used) receptacle. The output signal is a balanced, differential signal. A differential input charge amplifier is appropriate for use with this sensor.

Common applications include: gas turbine combustion monitoring, high pressure steam and propulsion system testing.

Recommended compatible cables are the 6917M169-ZZZ, 6917M170-ZZZ and 6917M171-ZZZ or equivalent (ZZZ designates cable length in inches) which are low noise, twisted pair cable assemblies terminating to pigtail, BNC and PC06A-8-2P connector respectively.
# Piezoelectric dynamic pressure sensor
## Model 522M37A

### Specifications
The following performance specifications conform to ISA-RP-37.2 and are typical values, referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

<table>
<thead>
<tr>
<th>Dynamic characteristics</th>
<th>Units</th>
<th>522M37A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>psi</td>
<td>± 500</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>pC/psi</td>
<td>17 ± 20%</td>
</tr>
<tr>
<td>Resonance frequency, minimum</td>
<td>kHz</td>
<td>20</td>
</tr>
<tr>
<td>Sensitivity deviation over temperature</td>
<td>%</td>
<td>± 10 typical</td>
</tr>
<tr>
<td>Vibration sensitivity</td>
<td>pC/g</td>
<td>0.05 typical</td>
</tr>
</tbody>
</table>

### Electrical characteristics
- **Output signal type**: Balanced differential
- **Resistance**
  - Room temperature, +75°F (+24°C)
    - Internal (between pins 2 and 3): Ω 1 G minimum
    - Insulation (between pins 2 or 3 and case): Ω 100 M minimum
    - Maximum temperature, +986°F (+530°C)
      - Internal: Ω 50 k minimum
      - Insulation: Ω 10 k minimum
- **Capacitance** (between pins 2 and 3): pF 165 + 65 pF/ft

### Environmental characteristics
- **Temperature range, operating**
  - Transducer and hardline cable: °F (°C) -67 to +986 (-55 to +530)
  - Receptacle: °F (°C) -67 to +500 (-55 to +260)
- **Humidity**: Hermetically sealed
- **Maximum static pressure**: psi 400
- **Minimum bend radius of hardline cable**: inch 0.3

### Physical characteristics
- **Dimensions**: See outline drawing
- **Weight**: grams (oz) 18 (0.64) + 13 (0.46)/ft typical
- **Material**
  - Transducer: Inconel alloy
  - Hardline cable and receptacle: Stainless steel

### Calibration data supplied
- **Sensitivity**: pC/psi
- **Internal resistance**: Ω
- **Insulation resistance**: Ω
- **Capacitance**: pF
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Notes

1. Intermittent temperature exposure is defined as 5 minutes over a 30 minute period.

2. For short cable lengths, provision must be made to ensure receptacle is not exposed to temperatures greater than +500°F (+260°C). Minimum cable length is 12 inches. Cable length “ZZZ” is in inches and is determined by model dash number, i.e. 522M37A-120 has a cable length of 120 inches.

522M37A – ZZZ

Integral hardline cable length in inches

Basic Model Number