Piezoelectric dynamic pressure transducer
Model 522M17

Key features
- 1000°F (+538°C) operation
- Sensitive dynamic pressure measurements under high static pressure
- Requires no external power
- Inconel construction
- Integral hardline cable

Description
The Meggitt model 522M17 is a precision piezoelectric pressure transducer designed for sensing dynamic pressure fluctuations, even in extreme temperatures and high static pressure. The transducer is manufactured with all welded construction using high temperature inconel. The model 522M17 operates at temperature extremes of up to 1000°F continuous and up to 1200°F intermittent.

The integral metal-sheathed cable is of triaxial construction with a 10-32 coax receptacle which features output signal to case isolation. The electrical design is optimized for use with single-ended amplifiers.

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

Meggitt
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# Piezoelectric dynamic pressure transducer

## Model 522M17

### Specifications

The following performance specifications are typical values, referenced at +75°F (+24°C) unless otherwise noted.

<table>
<thead>
<tr>
<th>Dynamic characteristics</th>
<th>Units</th>
<th>Charge sensitivity</th>
<th>12.0 pC/psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resonance frequency</td>
<td>kHz</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Temperature response</td>
<td></td>
<td>Typically ±10%</td>
<td></td>
</tr>
<tr>
<td>Vibration sensitivity</td>
<td>pC/g</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical characteristics

- **Output polarity**: Pressure directed into diaphragm of unit produces positive output
- **Internal resistance**: GΩ ≥ 1
- **Insulation resistance**: MΩ ≥ 100
- **Transducer capacitance**: pF 100
- **Cable capacitance**: pF/ft. 120

### Environmental characteristics

- **Operating temperature (max)**:
  - Transducer: +1000°F (+538°C) continuous
  - +1200°F (+649°C) intermittent [1]
  - +351°F (+177°C) continuous
  - +450°F (+232°C) intermittent [1]
- **Humidity**: Transducer hermetically sealed
  - Receptacle epoxy sealed, non-hermetic
- **Operating pressure (maximum)**: 2500 psi static with 500 psi normal dynamic range

### Physical characteristics

- **Dimensions**: See outline drawing
- **Weight, sensor, less cable**: gm (oz) 25 (0.88)
- **Case material**: Inconel
- **Connector**: 10-32 coax connector
  - The length of cable in inches is indicated by dash numbers in the model number (i.e. 522M17-120 has a 120 inch long cable terminated with a 10-32 receptacle.) Overall cable length tolerance equals “L” +6.0 in / -0.0 in.

### Calibration

- **Supplied**:
  - Charge sensitivity: pC/psi
  - Internal resistance: Ω
  - Insulation resistance: Ω
  - Capacitance: pF
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Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>522M17</th>
</tr>
</thead>
<tbody>
<tr>
<td>3090C-120</td>
<td>Cable assembly, 10 ft, for under +500°F</td>
<td>Optional</td>
</tr>
<tr>
<td>2771C</td>
<td>In-line charge convertor for use with constant current source</td>
<td>Optional</td>
</tr>
<tr>
<td>2721B</td>
<td>Charge amplifier</td>
<td>Optional</td>
</tr>
</tbody>
</table>

Notes

1. Intermittent temperature exposure is defined as 5 minutes over a 30 minute period.
2. Model number definition:

\[
\text{522M17 - ZZZ}
\]

\[
\text{Cable length in inches (i.e. 522M17-240 has a length of 240 inches)}
\]

\[
\text{Basic model number}
\]

3. Though the unit withstands a high static pressure, it is not sensitive to static pressure.