Aeroacoustic Microphones
Instrumentation-grade precision. All-weather capable.

Precision Piezoelectric Microphones
- MEMS piezoelectric microphones designed from the ground up to accurately measure critical noise emissions
- High dynamic range, low noise floor and ultra-high bandwidth performance
- Cylindrical and flat-pack form factors for standalone sensors and high-density arrays
- Designed to withstand high-intensity sound and survive all-weather environments
- Optional IEPE and phantom power configurations
- Suite of sensor models for different applications
- 1/8” and 1/4” standard cylindrical packages with custom packaging available

Features and Benefits
- Performance specs meet typical aeroacoustic testing requirements
- Smooth flow-facing surface (< 25 um roughness) reduces or eliminates flow disturbances
- Robust sensor construction handles moisture and particulates
- Wafer-level fabrication provides increased phase matching for arrays

Applications
- Instrumentation-grade acoustic sensing
- Aeroacoustics and aerodynamics
- Reduced-scale wind tunnel and flight testing
- High-density, high channel count discrete and fully-integrated arrays

Available Summer 2019

<table>
<thead>
<tr>
<th>Sensor Model</th>
<th>Bandwidth (kHz)</th>
<th>MDP (dB SPL)</th>
<th>3% THD Limit (dB SPL)</th>
<th>Sensitivity (uV/Pa)</th>
<th>Dynamic Range (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-50</td>
<td>54</td>
<td>25</td>
<td>168</td>
<td>600</td>
<td>143</td>
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<tr>
<td>M-120</td>
<td>129</td>
<td>36</td>
<td>&gt; 172</td>
<td>180</td>
<td>141</td>
</tr>
</tbody>
</table>

1. All values nominal
2. Minimum Detectable Pressure (1 Hz bin @ 1kHz, re 20 uPa)
3. Sound pressure level at 3% Total Harmonic Distortion (@ 1 kHz, re 20 uPa)

Micromachined piezoelectric microphones tailored specifically for aeroacoustic measurements
Pressure Sensors and Arrays

- Same core piezoelectric technology as aeroacoustic microphones, optimized for dynamic pressure
- Multiple sensor models with high dynamic range and high bandwidth (see specifications table)
- Ultra-miniaturized, monolithic (single-die) arrays with sub-mm spatial resolution
- Flat-pack and custom configurations available
- Available as single sensors and in 4x4 and 1x16 single-chip arrays

Applications

- Ultra-high bandwidth sensing
- High-density pressure mapping
- Reduced-scale wind tunnel testing

Features and Benefits

- Non-intrusive — backside contacts for minimal flow disturbance
- Integrated electronics for long cable runs
- Ultra-low power, highly durable and compact
- Calibrated over entire measurement bandwidth

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<tbody>
<tr>
<td>PS-250</td>
<td>Discrete</td>
<td>250</td>
<td>5E-7</td>
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<td>140</td>
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<td>178</td>
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<td>DPS-5</td>
<td>4x4, 1x16</td>
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<td>1E-6</td>
<td>6</td>
<td>40</td>
<td>132</td>
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<tr>
<td>DPS-10</td>
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<td>484</td>
<td>3E-6</td>
<td>10</td>
<td>71</td>
<td>66</td>
</tr>
</tbody>
</table>

1 All values nominal
2 Minimum Detectable Pressure (1 Hz bin @ 1kHz)
3 Pressure at 3% Total Harmonic Distortion (@ 1 kHz)

With a deep knowledge of aerospace test and over two decades researching best-in-class sensor development techniques, IC² delivers scientific-grade precision sensors that push the envelope of aerospace measurement accuracy and performance.

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