SENSORS FOR EXTREME TEMPERATURE AUTOMOTIVE TESTING
WHAT IS UHT-12™?

UHT-12™ is a new crystal designed for more accurate, lower noise measurements during large temperature variations. UHT-12™ technology reduces the effects of temperature variation. Pyroelectricity phenomenon may occur during large temperature fluctuations, generating “spikes” and disrupting behavior of the accelerometer and the test results. Accelerometers made with UHT-12™ technology have an improved data quality.

APPLICATIONS

Vibration testing of automotive exhaust, turbocharger and engine systems requires accelerometers that are designed to withstand very high temperatures. PCB’s accelerometers for research and development are manufactured from tough low mass materials such as titanium and Inconel, are hermetically sealed and have no moving parts.

The UHT-12™ family of accelerometers include Model 320C52, 320C53, 339B31, 339B32, 357A64, 339A30, 339A31, 339A32, EX357E90, EX357E91, EX357E92, EX357E93, 357A63, EX356A73 and EX611A00. Other products such as Series 115, 176 and TLD339A37 pressure sensors are also available.
HIGHLIGHTS

- Absence of pyroelectric noise spikes up to 1200 °F (649 °C)
- Sensitivity that remains more consistent over a wide temperature change
- Shear mode crystals isolated from base strain & transverse measurement errors
- Proprietary crystal technology comes sealed in a hermetic package and has proven reliable performance in hundreds of automotive powertrain NVH installations for research and monitoring

PCB® ACCELEROMETERS ARE AVAILABLE TO 1200 °F (650 °C)

- ICP® accelerometers available in single and triaxial versions to 356°F/180°C
- Charge output accelerometers for testing or continuous monitoring cover temperature ranges to 1200 °F (650 °C)
UHT-12™ CHARGE OUTPUT ACCELEROMETERS

Testing of turbocharger, exhaust systems and catalytic converters requires an ultra high temperature sensor. These sensors are designed specifically for demanding automotive testing environments and feature integral hard line cables.

- Compact and electrically isolated, Series EX357E9X
- Operate in temperatures up to 1200 °F (650 °C)
- Insensitive to extreme variation in temperature
EXTRATEMPERATURE,
DIFFERENTIAL CHARGE
ACCELEROMETER
MODEL EX611A00
- Sensitivity: (±5%) 10.0 pC/g
- 2-pin MIL connector

CHARGEOUTFIUTER
ACCELEROMETER, WITH UHT-
12™SHEAR SENSING CRYSTAL
MODELS EX357E92 & EX357E93
- Sensitivity: (±10%) 2.3 pC/g
- 10-32 coaxial jack connector

VERYHIGHTEMPERATURE,
SINGLE-ENDED CHARGE
TRIAXIAL ACCELEROMETER
SERIES EX356A73
- Sensitivity: (±5%) 3.2 pC/g
- Hazardous area approved

VERYHIGHTEMPERATURE,
SINGLE-ENDED CHARGE
ACCELEROMETER
MODEL 357A63
- Sensitivity: (±10%) 0.53 pC/g
- 10-32 coaxial jack connector
UHT-12™ ICP® ACCELEROMETERS

LOW THERMAL COEFFICIENT ACCELEROMETERS FOR STABLE SENSITIVITY OVER A WIDE TEMPERATURE RANGE

PCB® single and triaxial ICP® accelerometers are designed with a low thermal coefficient, wide operating temperature range, and good broadband resolution, making them ideal for powertrain development and powertrain NVH applications and for any vibration measurement requiring tight control of amplitude sensitivity over a wide thermal gradient.

- Temperature coefficient as low as 0.005%/F (0.009%/C)
- Available in stud, adhesive and through hole configurations
- Measurement frequency to 10 kHz at +/- 5%
- Titanium housed and hermetically sealed
- ICP up to 356°F/180°C
**TRIAXIAL ICP® ACCELEROMETER**

**MODEL 339A30 & MODEL 339A30/NC**
- Sensitivity: (±10%) 10 mV/g
- Measurement Range: ±500 g pk
- Broadband Resolution: 0.008 g rms
- Model 339A30/NC does not include mating cable

**MODEL 339A31 & 339A31/NC**
- Sensitivity: (±10%) 10 mV/g
- Measurement Range: ±500 g pk
- Broadband Resolution: 0.008 g rms
- Model 339A31/NC does not include mating cable

**MODEL 339A32 & 339A32/NC**
- Sensitivity: (±10%) 10 mV/g
- Measurement Range: ±500 g pk
- Broadband Resolution: 0.003 g rms
- Model 339A32/NC does not include mating cable

**ICP® ACCELEROMETER**

**MODELS 320C52 & 320C53**
- Sensitivity: (±10%) 10 mV/g / (±20%) 1 mV/g
- Measurement Range: ±500 g pk / ±5000 g pk
- Broadband Resolution: 0.004 g rms / 0.04 g rms

**QUARTZ SHEAR TRIAXIAL ICP® ACCELEROMETER**

**MODELS TLD339A34**
- Sensitivity: (±10%) 50 mV/g (5.1 mV/(m/s²))
- Measurement Range: ±100 g pk (±980 m²/s² pk)
- Electrical Connector: 1/4-28 4-Pin

**MODELS TLD339A36**
- Sensitivity: (±10%) 10 mV/g (1.0 mV/(m/s²))
- Measurement Range: ±500 g pk (±4900 m²/s² pk)
- Electrical Connector: 1/4-28 4-Pin
ACCESSORIES

CHARGE CONVERTERS

- Condition signals from charge output piezoelectric sensors
- Convert high impedance charge signals into low impedance voltage signals

**IN-LINE CHARGE CONVERTER**
MODEL 42E38
- Sensitivity: 0.1 mV/pC
- Input range: 25000 pC
- Low frequency (-5%): 5 Hz

**IN-LINE CHARGE CONVERTER**
MODEL 42E35
- Sensitivity: 1 mV/pC
- Input range: 2500 pC
- Low frequency (-5%): 5 Hz

**IN-LINE CHARGE CONVERTER**
MODEL 42E36
- Sensitivity: 10 mV/pC
- Input range: 250 pC
- Low frequency (-5%): 5 Hz
ICP® SIGNAL CONDITIONERS

- Operate with ICP® sensor signal conditioners or readout devices with an ICP® sensor input
- Maintain fixed charge conversion regardless of input capacitance

MODEL 422M182
- ICP® powered
- In-line differential charge converter
- Sensitivity: (±5%) 4 mV/pC
- 2-pin Mil input to BNC output

MODEL 482C05
- 4-channel
- Line-powered
- ICP® sensor signal conditioner
- BNC input/output conditioner

MODEL 482C16
- 4-channel
- Line-powered
- ICP® sensor signal conditioner
## COMPLETE HIGH TEMPERATURE ACCELEROMETER LISTING

<table>
<thead>
<tr>
<th>Temp</th>
<th>Model</th>
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<tbody>
<tr>
<td>≥ 325 to &lt; 500 °F (162 °C &lt; 260 °C)</td>
<td>357C10&lt;br&gt;357C10/NC&lt;br&gt;320C15&lt;br&gt;320C18&lt;br&gt;357A09&lt;br&gt;P357A09&lt;br&gt;TLD339A34&lt;br&gt;TLD339A36&lt;br&gt;339A31*&lt;br&gt;339A32*&lt;br&gt;HT356B01&lt;br&gt;HTJ356B01&lt;br&gt;356A70&lt;br&gt;356A71&lt;br&gt;320C52&lt;br&gt;320C53</td>
</tr>
<tr>
<td>≥ 500 to &lt; 1200 °F (≥ 260 °C to &lt; 650 °C)</td>
<td>357B03&lt;br&gt;357B06&lt;br&gt;357B21&lt;br&gt;357B04&lt;br&gt;357B11&lt;br&gt;EX356A73*&lt;br&gt;EX600B1X*&lt;br&gt;357A64&lt;br&gt;357A63&lt;br&gt;357C71&lt;br&gt;357C72&lt;br&gt;357C73&lt;br&gt;357B81&lt;br&gt;357A07/NC&lt;br&gt;357A100*&lt;br&gt;357B69&lt;br&gt;357B69/NC&lt;br&gt;357B53&lt;br&gt;357B61&lt;br&gt;357B61/NC</td>
</tr>
<tr>
<td>≥ 1200 °F (≥ 650 °C)</td>
<td>EX357E90&lt;br&gt;EX357E91&lt;br&gt;EX357E92&lt;br&gt;EX357E93&lt;br&gt;EX611A20</td>
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*UHT-12™ sensing technology
MTS Sensors, a division of MTS Systems Corporation (NASDAQ: MTSC), vastly expanded its range of products and solutions after MTS acquired PCB Piezotronics, Inc. in July, 2016. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corp.; IMI Sensors and Larson Davis are divisions of PCB Piezotronics, Inc.; Accumetrics, Inc. and The Modal Shop, Inc. are subsidiaries of PCB Piezotronics, Inc.