TE SENSOR SOLUTIONS FOR SMART METERING

TE Connectivity (TE) is a global technology leader, providing connectivity and sensor solutions essential in today’s increasingly connected world. With the acquisition of Measurement Specialties (MEAS), a global designer and manufacturer of sensors and sensor-based systems, TE is one of the largest sensor companies in the world. Our broad portfolio of sensor technologies is designed for a wide range of applications. Our engineers transform concepts into creations—redefining what’s possible using intelligent, efficient and high-performing TE products and solutions proven in harsh environments.

SPECIFIC SOLUTIONS

TE Sensor Solutions offers a broad range of standard sensors which are configurable for a variety of applications. Our experienced engineers can also modify existing sensor designs or develop a whole new sensor solution to meet customer specific requirements. For Smart Metering applications, TE Sensor Solutions is able to accommodate special full-scale ranges and signal conditioning requirements to enhance performance. Special packaging options including custom cable and terminations can also be integrated into our sensors.

SMART METERING APPLICATIONS

TE temperature and pressure sensors are used for flow correction of gases flowing from one point to another. They meet the two key parameters critical for successful measurement—High Accuracy (TEB) and Stability. TE Sensor Solutions manufactures each type of sensor to meet these requirements through extended burn in to enhance stability and on-board electronics to provide accuracy.
PRESSURE SENSORS

**MEAS 85BSD**
- **Package**: Media Isolated Module, Digital Output
- **Type**: Media Isolated Module, Digital Output
- **Pressure Range**: Gage, absolute
- **Output/Span**: 0 - 0.35 to 20 bar / 0 - 5 to 300 psi
- **Unique Features**: 13 mm diaphragm diameter, Pressure and temperature read-out, Low power option
- **Accuracy**: ±0.25% span
- **Output**: —
- **Operating Temp.**: -40°C to 125°C
- **Response Time**: 8.4 mS
- **Mechanical Specifications**: Weld mount or threaded fitting available, Cable and connector options
- **Typical Applications**: Harsh media, gas, liquid

**MEAS 82C**
- **Package**: Media Isolated Module, Analog Output
- **Type**: Angle sensor
- **Pressure Range**: Gage, absolute
- **Output/Span**: 0 - 0.07 to 34 bar / 0 - 1 to 500 psi
- **Unique Features**: 19 mm diaphragm diameter, Modular design, Low profile, ±1.0% interchangeable span (Gain set resistor)
- **Accuracy**: >15 psi, -40°C to 125°C, 0.1 mS Typ.
- **Output**: 0 - 5 V
- **Operating Temp.**: -25°C to 85°C
- **Response Time**: 8.4 mS
- **Mechanical Specifications**: Stainless steel 316 L, Thread fitting: G 1/4” gas male, Custom connector available, Available uncompensated, compensated, and constant voltage
- **Typical Applications**: Harsh media, gas, liquid

**MEAS US300**
- **Type**: Transducer
- **Pressure Range**: Gage, absolute
- **Output/Span**: 0 - 1 bar to 344 bar / 0 - 15 psi to 5K psi
- **Unique Features**: Stainless steel 316 L, Thread fitting: G 1/4” gas male, Custom connector available, Vibration: ±20 g MIL-STD-881C, procedure 514.2, figure 514-2, curve L, Shock: 100g 11 mS
- **Accuracy**: ±0.25% span, ±1.0% interchangeable span (Gain set resistor)
- **Output**: Amplified
- **Operating Temp.**: -40°C to 105°C
- **Response Time**: 8.4 mS
- **Mechanical Specifications**: Gas resistant gel fill, Vibration (EN60068-2-64): Severity level 2, Shock (EN60068-2-31): Severity level 2
- **Typical Applications**: Harsh media, gas, liquid

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PRESSURE SENSORS

**MEAS MS5803**
- **Type**: Board Mounted, Digital Output
- **Pressure Range**: Absolute
- **Output/Span**: 2 to 30 bar / 30, 73 psi
- **Unique Features**: 24-bit digital sensor, software calibration and temperature compensation (I2C & SPI), no external components
- **Accuracy**: ±0.3% of F.S.
- **Operating Temp.**: -25°C to 85°C
- **Mechanical Specifications**: Gas resistant gel fill
- **Typical Applications**: Altimeter, barometer, low pressure gas

**MEAS MS52xx-C&T**
- **Type**: Board Mounted
- **Pressure Range**: Absolute
- **Output/Span**: 1 to 7 bar / 15, 100 psi
- **Unique Features**: Small size, High reliability, low drift, Trimmed offset available
- **Accuracy**: ±0.3% of F.S.
- **Operating Temp.**: -40°C to 125°C
- **Mechanical Specifications**: Gas resistant gel fill, Vibration (EN60068-2-64): Severity level 2, Shock (EN60068-2-31): Severity level 2
- **Typical Applications**: Altimeter, barometer, low pressure gas

POSITION SENSORS

**MEAS KMA36**
- **Type**: Magnetoresistive (MR) Components
- **Package**: 20 pin TSSOP
- **Type**: Angle sensor
- **Range**: 360° angle
- **Unique Features**: Low cost MR encoder for rotational and incremental measurements
- **Output**: 0 - 5 V
- **Resolution**: Typ. 0.1°
- **Accuracy**: Typ. 0.3°
- **Operating Temp.**: -25°C to 85°C
- **Dimensions (mm)**: 6.5 x 6.4 x 1.2
- **Typical Applications**: Flow rate sensor for liquids and gasses
TEMPERATURE SENSORS

MEAS PTF
PT1000—Platinum Element

<table>
<thead>
<tr>
<th>Package</th>
<th>Wired component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>RTD, thin film platinum deposited on ceramic substrate, glass coated</td>
</tr>
<tr>
<td>Resistance Range</td>
<td>1000Ω</td>
</tr>
</tbody>
</table>
| Unique Features  | • Long term stability  
|                  | • Interchangeability  
|                  | • Small dimensions  
|                  | • Short response time  
|                  | • High electrical insulation |
| Accuracy         | Class A according to DIN EN 60751 |
| Operating Temp.  | -50°C to 400°C |
| Accuracy         | ±0.1°C at 0°C |
| Self Heating     | 0.5°C /mW in air flow 1 m/s |
| Response Time    | 10 seconds typical in air flow 1 m/s  
|                  | 0.2 seconds typical in water flow 0.4m/s |
| Measuring Current R0 | 1,000Ω: 0.4 mA Typ. |
| Mechanical Specifications | Sensors available in a number of mechanical configurations  
|                  | PTFC: 2.0 x 2.3mm, PTFD: 2.0 x 5.0mm, PTFF: 2.0 x 4.0mm, PTFM: 1.2 x 4.0mm |
| Typical Applications | Temperature compensation |

MEAS Platinum Transducer
PT1000

<table>
<thead>
<tr>
<th>Stainless steel housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platinum element encapsulated</td>
</tr>
<tr>
<td>Resistance Range</td>
</tr>
</tbody>
</table>
| Unique Features  | • IP68  
|                  | • 2.2 V to 3.6 V |
| Accuracy         | Class A according to DIN EN 60751 |
| Operating Temp.  | -25°C to 70°C |
| Accuracy         | ±0.1°C at 0°C |
| Self Heating     | — |
| Response Time    | 30 seconds typical (75°C to 25°C water bath) |
| Measuring Current R0 | — |
| Mechanical Specifications | — |
| Typical Applications | Temperature compensation |

QUALITY STATEMENTS

• ISO 9001
• Measuring Instruments Directive 2004/22/EC annex D

VIBRATION SENSORS

MEAS MiniSense 100
LDTC Family

<table>
<thead>
<tr>
<th>Package</th>
<th>Piezo film elements with or without mass and pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Cantilever beam with vertical or horizontal pins</td>
</tr>
<tr>
<td>F.S. Range (g)</td>
<td>±10 (Typical)</td>
</tr>
</tbody>
</table>
| Unique Features  | • Very low cost  
|                  | • High sensitivity (1 V/g)  
|                  | • Ultra-low power (Self generating) |
| Accuracy         | ±20.0% (Typical) |
| Operating Temp.  | -40°C to 70°C |
| Dimensions (mm)  | 19.05 x 6.35 x 6.35 |
| Typical Applications | Water metering, self powered switches, rotary counters |

MEAS Platinum Transducer
Pt1000

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| Accuracy         | ±10.0% (Typical) |
| Operating Temp.  | -40°C to 70°C |
| Dimensions (mm)  | 19.05 x 6.35 x 6.35 |
| Typical Applications | Temperature compensation |

For More Information Contact
TE Connectivity

te.com/sensorsolutions-contact
www.te.com
www.meas-spec.com