Pressure sensors and systems

Innovative solutions for engine combustion analysis
## Powertrain analysis system

### KiBox2

### KiBox2 amplifiers/modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data</th>
<th>Key features</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>2895A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Connecting and extension cables

### Connecting triboelectrically optimized cables

| 1989A3, 3 (2) | 1989A7, 3 (4) | 1975A, 2 (1) | 1989A8, 4 (4) |
| 1989A5S3, 1 (2) | 1989A5S7, 1 (4) | 1989A5S5, 1 (2) | 1987B, 3 (3) |

### Adapters

<table>
<thead>
<tr>
<th>For piezoelectric connecting cables</th>
<th>M4 neg.</th>
<th>10-32 neg.</th>
<th>10-32 pos.</th>
<th>BNC pos.</th>
<th>Triax neg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 pos.</td>
<td>1700A13</td>
<td>1700A31</td>
<td>1704A3</td>
<td>1704A2</td>
<td>1704A1</td>
</tr>
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<td>1700A3</td>
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<td>1704A3</td>
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<td>1704A1</td>
</tr>
<tr>
<td>1987B, 3</td>
<td>1704A4</td>
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</tr>
</tbody>
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### Piezoelectric sensors

#### Pressure measurement in the intake and exhaust systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Measurement Range</th>
<th>Connection</th>
<th>Media Temperature</th>
<th>Mounting Size</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>6054C</td>
<td>0 ... 300 bar</td>
<td>M5x0.5</td>
<td>25 ... 180 °C</td>
<td>M6x6.5</td>
<td>Compactly, highly accurate sensor, low thermal sensitivity shift over the whole engine operating map, compensated for acceleration, ideal thermal shock behavior.</td>
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<tr>
<td>6053C</td>
<td>0 ... 250 bar</td>
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#### Pressure measurement in combustion engines

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### Piezoresistive sensors

#### Intake/exhaust/hydraulic pressure

<table>
<thead>
<tr>
<th>Compact solution</th>
<th>Intake/Exhaust cooled</th>
<th>Exhaust/water-cooled</th>
<th>Type 4017A/4007D</th>
<th>Type 4049B</th>
</tr>
</thead>
</table>

#### High pressure

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Clamping Adapter</th>
<th>Pressure</th>
<th>Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>6533</td>
<td>6533</td>
<td>≤ 1,000 bar</td>
<td>Type 4065B</td>
<td>Intake/exhaust pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≤ 3,000 bar</td>
<td>Type 4067E</td>
<td>General pressure</td>
</tr>
</tbody>
</table>

* only common rail application
### Piezoelectric pressure sensors

**Medium-sized engines**

- Small engines
- Racing engines
- (trucks, etc.)

**Compact solution**

- Intake/exhaust/hydraulic pressure

- Knock detection/onboard

**General purpose**

- Type 6054C
- Type 6041C
- Type 6044A
- Type 6124A
- Type 6125C
- Type 6056B
- Type 6113C/6115C/6118C

**Piezoelectric sensors**

<table>
<thead>
<tr>
<th>High-pressure sensors</th>
<th>Siemens Smart Service* (reinforced version)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 4011A</td>
<td>Type 4049B</td>
</tr>
<tr>
<td>Type 7531B</td>
<td>Type 4065B</td>
</tr>
<tr>
<td>Type 4058</td>
<td>Type 4067E</td>
</tr>
<tr>
<td>Type 4068/4080BT</td>
<td>Type 4624A/4665/4667</td>
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**Low-pressure sensors**

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<td>Type 4067E</td>
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<tr>
<td>Type 4080/4080BT</td>
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**Measurement**

- Medium-sized engines
- Small engines
- Racing engines
- (trucks, etc.)

**Compact M5**

- Sensor
- M5x0.5

- Ideal for measurements with glow plug adapter Type 6542Q...

**Exhaust/water-cooled**

- Knock detection

**General pressure**

- Type 6054C/6041C/6044A
- Type 6113C/6115C/6118C

**Water-cooled cylinder**

- Pressure sensor
- Excellent thermal stability
- Over the whole engine operating range
- Very low linearity
- Diaphragm optimized for thermal shock and durability

**Spark plug**

- Knock detection

**Thermodynamic**

- Type 6054C/6041C/6044A
- Type 6113C/6115C/6118C

**High durability thanks to long service life**

- Type 6054C/6041C/6044A
- Type 6113C/6115C/6118C

**General pressure)**

- Intake/exhaust pressure
- Water measurements
- 0 to 1,000 bar

**PR amplifier**

- Type 4624A
- Type 4665/4667
- Type 4629A
- Type 4665/4667

### Piezoelectric sensors

**Measuring spark plugs**

- Glow plug adapter

- Type 6047A
- Type 6068B
- Type 6542Q
- Type 6545P

**Glow plug adapter**

- Type 6047A
- Type 6068B
- Type 6542Q
- Type 6545P

**Optical**

- Type 6047A
- Type 6068B
- Type 6542Q
- Type 6545P

**No Gasoline**

- Type 6054C/6041C/6044A

**Clamping adapter**

- Type 6054C/6041C/6044A
- Type 6113C/6115C/6118C

**Data sheet**

- 003-599 003-300 003-267
- 002-614 003-165 003-166
- 003-391

**Technical data**

<table>
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<th>Type 4011A</th>
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<tbody>
<tr>
<td>0 ... 500</td>
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**Sensor data**

- Type 6054C/6041C/6044A
- Type 6113C/6115C/6118C

**Piezoelectric sensors**

- Type 4011A
- Type 4049B
- Type 7531B

**Piezoresistive/absolute pressure sensors**

- For piezoelectric/cylinder pressure sensors

**Piezoelectric sensors**

- Type 4011A
- Type 4049B
- Type 7531B

**Presentation**

- Correct assignment of the sensor data is always guaranteed, so you benefit from enhanced process reliability.

**Application-specific**

- Excellent strain interference rejection

**Wireless**

- Standard sensor for different glow plug geometries

**Miniature pressure**

- Sensor for highest natural frequency
- High durability thanks to long service life

**Thermodynamic**

- Application-specific geometries and heat values
- Excellent strain interference rejection

**Pressure measurement**

- Low-pressure sensors DigitalSmart (DS series)
- High-pressure sensors DigitalSmart (DS series)
- Press./temp. transmitter

**Automatic sensor identification with PiezoSmart**

- For piezoelectric/cylinder pressure sensors

**PiezoSmart**

- Is a smart active system for identifying individual piezoelectric pressure sensors. Its main element is an electronic data sheet called TEDS (Transducer Electronic Data Sheet). The TEDS contains all the essential data of an individual pressure sensor, which it can exchange with ancillary equipment.

**The amplifiers automatically set the correct parameters by exchanging data with the TEDS of the pressure sensor.**

- Correct assignment of the sensor data is always guaranteed, so you benefit from enhanced process reliability.
- Measurement can take place independently without any database.
- Operating time and cycles of PiezoSmart pressure sensors are recorded automatically, with classification of pMax values.

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* TEDS: Transducer Electronic Data Sheet.