MEMS pressure sensor chips and modules

First Sensor

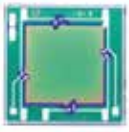
Piezoresistive silicon pressure sensors for absolute, relative and differential measurement in the range from 3 kPa (30 mbar) to 60 MPa (600 bar).

Pressure sensor elements

Pressure sensor elements from First Sensor utilize the „Sensor Technology for Advanced Resistors“ (STARe). This technology is based on the development of suitable materials, layouts and electrical shielding and enables pressure measurement with highest accuracy and stability. We offer product lines for highest precision (High Stability Line) as well as for aggressive media and fluids (Harsh Environmental Line).

Standard Line STARe
Absolute, relative and differential pressure
1 bar to 30 bar

High Stability Line STARe
Absolute, relative and differential pressure
30 mbar to 400 bar



Industrial Line STARe
Absolute, relative and differential pressure
100 mbar to 600 bar

Harsh Environmental Line
Absolute pressure
2 bar to 16 bar

Pressure sensor components

K-Series STARe pressure sensor components from First Sensor are pressure sensor elements of the High Stability Line STARe mounted on a TO-8 header whose coefficient of thermal expansion is adapted to the sensor element. Further, the devices include a high-precision PTC temperature sensor and ceramic components to reduce the dead volume. This construction enables precision measurements within the 0.04 % accuracy class. The K-Series STARe is supplied with a plastic housing for transport protection and pressure measurements up to 10 bar.

K-Serie STARe A/G
Absolute and relative pressure
60 mbar to 400 bar

K-Series STARe D
Differential pressure
30 mbar to 10 bar

Pressure Sensors

First Sensor develops and manufactures a large selection of highly accurate and reliable pressure sensors and pressure transmitters for air, gas and liquids. The sensors either provide basic mV signals or fully signal conditioned analog or digital outputs. Our rugged industrial pressure transmitters use ceramic or stainless steel pressure sensor elements to achieve high media compatibility for corrosive liquids and gases.

Uncompensated pressure sensors

Our cost-effective piezoresistive pressure sensors for air and gases offer pressure ranges up to 10 bar. The uncalibrated and uncompensated basic sensors feature analog mV output signals and almost unlimited resolution. They offer very small housings with pressure ports for tubing or manifold connection and custom pressure ranges.

Series	Pressure ranges
HDU	**100 mbar to 5 bar**
HMU	**100 mbar to 10 bar**

Temperature compensated pressure sensors

High-precision miniature piezoresistive pressure sensors for air and gases from First Sensor feature full scale pressure ranges from 5 mbar. The sensors provide calibrated and temperature-compensated analog mV output signals and almost unlimited resolution. They are available in many different housing options and with custom pressure ranges.

Series	Pressure ranges
HCL	**5 to 75 mbar**
HDO	**10 mbar to 5 bar**
HRO	**10 mbar to 10 bar**

Pressure sensors with integrated signal conditioning

Digital piezoresistive miniature pressure sensors with amplified output signals for air and gases from First Sensor feature full scale pressure ranges from 2.5 mbar, a broad range of housing options and custom pressure ranges. High-resolution digital signal conditioning provides for a very high level of overall accuracy within large operating temperature ranges.

Series	Pressure ranges
HCLA	**2,5 to 75 mbar**
HCE	**10 mbar to 5 bar**
HDI	**10 mbar to 5 bar**

Pressure sensors based on flow measurement

Our ultra-low differential pressure sensors from 0.25 mbar (25 Pa) are based on thermal mass flow measurement. The extremely low air flow through a micro-flow channel integrated within the sensor chip ensures high immunity to dust contamination and condensation. The sensors feature high sensitivity and offset stability.

Series	Pressure ranges
LDE/LBA	**25 to 500 Pa (0,25 to 5 mbar)**

Pressure sensors with increased media compatibility

Our miniature piezoresistive pressure sensors with digital signal conditioning provide measurement ranges up to 10 bar and increased media compatibility for gases and liquids. We offer various housing options with a selection of pressure ports and custom pressure ranges.

Series	Pressure ranges
HMU	**100 mbar to 10 bar**
HMA	**100 mbar to 10 bar**
HMI/HME	**100 mbar to 10 bar**

Pressure sensors for corrosive liquids and gases

Our fully welded, media isolated stainless steel pressure sensors allow for high media compatibility with corrosive liquids and gases. These sensors stand out through their excellent price/performance ratio as well as very good stability and repeatability.

Series	Pressure ranges
SSO/SSI	**200 mbar to 35 bar**

Low pressure transmitters

Low pressure transmitters for air and gases from First Sensor offer full scale pressure ranges from 1 mbar. Options include a broad range of pressure and electrical connections as well as fast and flexible customization to specific requirements.

Series	Pressure ranges
CTE7000	**10 mbar to 5 bar**
BTE5000	**1 mbar to 10 bar**

Pressure transmitters for corrosive liquids and gases

Our pressure transmitters for corrosive liquids and gases use ceramic or stainless steel pressure sensor elements to ensure high media compatibility. The transmitters are available with a choice of different pressure and electrical connections and as custom versions.

Series	Pressure ranges
CTE8000	**250 mbar to 100 bar**
CTE9000	**100 mbar to 35 bar**
KTE6000	**250 mbar to 400 bar**

OEM pressure sensors

First Sensor develops and manufactures innovative and reliable pressure sensors for OEM applications that are adapted to your specific requirements with the help of our vast application experience. Due to our in-house production of all main sensor components we are able to ensure long product availability for your serial production.

Custom OEM pressure sensors

We design, develop and manufacture compact pressure sensors for integration into high-volume OEM applications. Our sensors are available in different pressure ranges from vacuum to high pressure and with customer-specific electrical connectors and pressure ports. Further, we offer a range of analog and digital interfaces such as ratiometric voltage output, SENT, LIN, PWM and I²C.

Parameter	Special features
Pressure range	**-1...2000 bar**
Pressure mode	**Absolute, gage, differential**
Output signal	**Ratiometric, SENT, LIN, PWM, I²C**
Temperature range	**-40 ... 135 (150) °C**
Protection class	**IP6K9K**