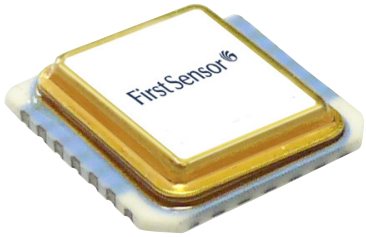
First Sensor is now part of TE connectivity

MEMS inertial sensors



First Sensor features a highly innovative technology platform for manufacturing high-precision inertial sensors for geoengineering, condition monitoring or navigation applications. The MEMS sensors allow for flexible customization to fit your individual application requirements.

Inclinometers and accelerometers

Our capacitive inclinometers and accelerometers are based on single crystal silicon sensor elements and utilize state-of-the-art micromachining technology to achieve large signal-to noise ratios and excellent stability over temperature. Therefore, they are able to detect extremely small changes in inclination or acceleration. Due to high aspect ratio microstructures (HARMS) the sensors feature ultra-low cross axis sensitivities. Further, the patented highly flexible AIM (Air gap Insulated Microstructures) technology minimizes parasitic capacitances.

Benefits of the AIM technology

- Ultra-low cross axis sensitivity due to HARMS technology
- Thin-film free mechanical components, single crystal silicon based
- Minimizing of parasitic capacitances due to insulation of the functional components by air gap
- Complete dry processing
- Excellent thermal performance
- Large signal-to-noise ratio
- Mechanical over-damped to reduce parasitic signals
- Customer specific measurement ranges due to flexible adjustment of mass, spring and damping

Features of the sensor system

- Dual axis measurement
- Excellent stability over temperature
- Digital interface (I²C or SPI)
- Shock survival 2000 g
- Hermetically sealed package
- Customized sensor solutions for packaging and signal processing

Applications

- Geoengineering
- Condition monitoring
- Navigation
- Security systems
- Platform control and stabilization
- Tilt sensing and leveling
- Industrial applications

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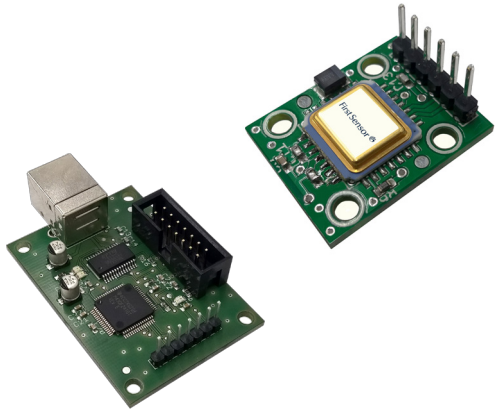
	Inclinometers			Accelerometers		
Parameter	SI-11.S1.C-30	SI-11.P3.C-30	Unit	SA-13.S1.C-8	SA-14.S1.C-15	Unit
Measurement range	±30	±30	°	±8	±15	g
Resolution at 10 Hz	< 0.0015	< 0.0040	°	< 65	< 95	µg
Scale factor (repeatability)	±35	±50	ppm	±35	±35	ppm
Scale factor (temperature coefficient)	±50	±50	ppm/K	±50	±50	ppm/K
Bias (repeatability)	±0.0030	±0.0045	°	±260	±470	µg
Bias (temperature coefficient)	±0.0025	±0.0030	°/K	±105	±175	µg/K
Non-linearity	< 0.5	< 0.5	%FS	< 1.0	< 1.0	%FS
Noise density	< 0.0004	< 0.0015	°/√Hz	< 20	< 30	µg/√Hz
Output data rate (max.)	1600	8000	Hz	1600	1600	Hz
Power supply	4.75 ... 5.25	2.7 ... 3.3	V	4.75 ... 5.25	4.75 ... 5.25	V
Digital interface	SPI	SPI		SPI	SPI	
Operating temperature	-40 ... 85	-40 ... 125	°C	-40 ... 85	-40 ... 85	°C

Packaging and samples

The inertial sensors are packaged in a tailored ceramic housing with 28 pins, that is similar to a standard LCC28 package (11.4x11.4x2.0 mm). Please contact us for more information regarding pinout, external circuitry or configuration of your device. In addition, sensor modules for easy-to-use read-out and quick evaluation of the sensor data are available (including control board, sensor board and software).



Customized solutions

First Sensor components, modules and sensor systems are developed and manufactured on a customer specific basis. All our products are customizable and can be adapted or developed to fit specific requirements or applications. Please contact us if you need more information regarding specification or packaging solutions.

About First Sensor

First Sensor AG is one of the world's leading suppliers in the field of sensor systems. Our company develops and manufactures both standardized and tailor-made sensor solutions for applications in the Industrial, Medical and Mobility growth markets. With over 800 employees, we are represented at six German locations and also have development, production and sales sites in the USA, Canada, China, the Netherlands, Great Britain, France, Sweden and Denmark along with a worldwide partner network. First Sensor develops and manufactures high-quality, customer-specific sensor solutions for the detection of light, radiation, pressure, flow, level and acceleration. The company produces in-house and along the value-added chain from component to system level.