Nano Strain Gauge

The Invisible Touch for Precise Force Sensing

Description		**Features**
Potentially the smallest commercially available strain sensor in a wheatstone bridge configuration. Measures forces where no space for conventional techniques are available. The sensor can either be printed directly onto your material or subassembly, or be integrated within a thin film. The size of a full wheatstonebridge can be reduced to a ultimately area of only a few micrometres. This enables the possibility to make literaly any material or subassembly force-sensitive. digid's sensor delivers exceptional performance with a high gauge factor flexibility for a wide range of applications. The nano strain gauge, makes force measurements possible on devices where is was not accessible before. Enabling new oportunities for automation and data gathering for e.g. predictive maintenance.		• High Sensitivity (e.g. 400 N/V on MEMS) • Wheatstonebridge footprint: 100 x 100 µm² • Adjustable Impedance from kΩ to 100MΩ • High impedance strain gauge enables usage of ultra thin wires due to neglectible wire resistance • Optimized for low power applications • Wide temperature range • Thermal output: ±1 µstrain/K uncomepsated • Long term stable • Vector Force Components customizable • Printable on various components • Available as full/ half/ quarter bridge configuration • Fully encapsulated sensor and traces
Application flexibility		
Ideal for tailored solutions in multiple industries, including • medical • automotive • aerospace • industrial automation		

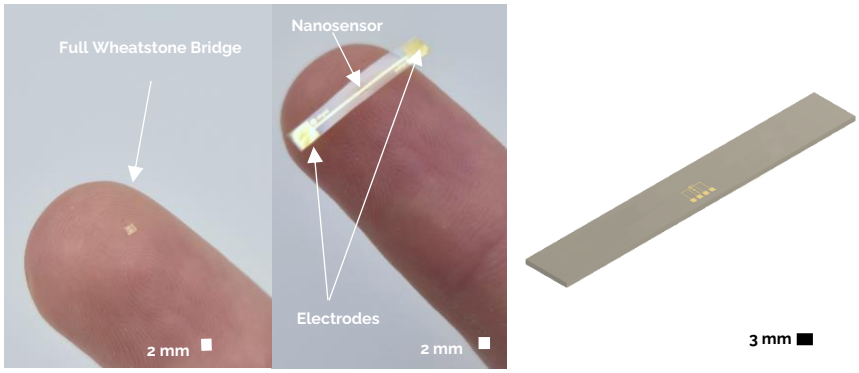

Figure 1: *Polyimide based strain gauges with the digid nanosensor technology.* ***Left****: Wheatstone bridge sensor in 0.5x0.8 mm² size and single stain gauge sensor (****middle****).* ***Right****: Custom made force sensor on a metallic subassembly.*

General Specifications		
Accuracy		1%
Precision		nN
Resolution		Customer specific (depends on sampling rate)
Sensitivity	[V/N]	400
Reliability		>> 1e9 bending cycles
Material Substrate		Si-based, Metals, Polymers, Ceramics, Glass
Base Resistivity	[Ω]	kΩ to 100MΩ
Operating Temperature	[°C]	-250 to +250
Temp Effect on Output	[µε/K]	2 bewteen 20°C to 100°C
Excitation Votlage	[V]	0.010 to 3.8
Wiring per singel sensor		2 wires, 50 AWG
Wiring per Wheatstone Bridge		4 wires, 50 AWG
Contact		Soldering, Conductive Expoy, wireonding
Gauge Factor		>10
Individual Sensor footprint	[nm²]	10 x 10

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