

Features

- ▶ Designed for resistive sensor bridges
- ▶ Digital compensation for offset, sensitivity non-linearity, and temperature dependencies
- ▶ Configurable input range $\pm(3 \dots 400)$ mV
- ▶ Offsets compensation up to ± 250 %FS without loss of accuracy
- ▶ 16-bit Delta-Sigma ADC for signal path
- ▶ Temperature compensation using on-chip sensor, bridge resistance, external diode or external thermistor
- ▶ SPI, I²C or digital PWM interfaces
- ▶ Optimized for low voltage operation: +2.7 V to +3.6 V
- ▶ 2 GPIOs support PWM output and alarm functions
- ▶ Programming over SPI or I²C-compatible interfaces
- ▶ Built-in self test capability for in-circuit diagnosis and self diagnostics in operation

Applications

- ▶ Automotive, Industrial, or Medical Sensors
- ▶ Pressure, Strain, Force, Torque Sensors
- ▶ Resistive Bridges based on Piezo-resistive
- ▶ MEMS or Thick / Thin Film Sensors

General Description

The E520.17 sensor signal processing IC provides amplification and linearization of sensor signals, with various digital interface options. Configuration and calibration information are stored in the embedded nonvolatile EEPROM memory. The device is optimized for low voltage operation 2.7 ... 3.6V.

The programmable input amplifier can process a wide range of input span and offsets without loss of accuracy. Both constant-voltage and constant-current bridge excitation are supported. The subsequent Delta-Sigma ADC feeds the digital linearization engine which computes compensation for offset, sensitivity, non-linearity, and their temperature dependencies.

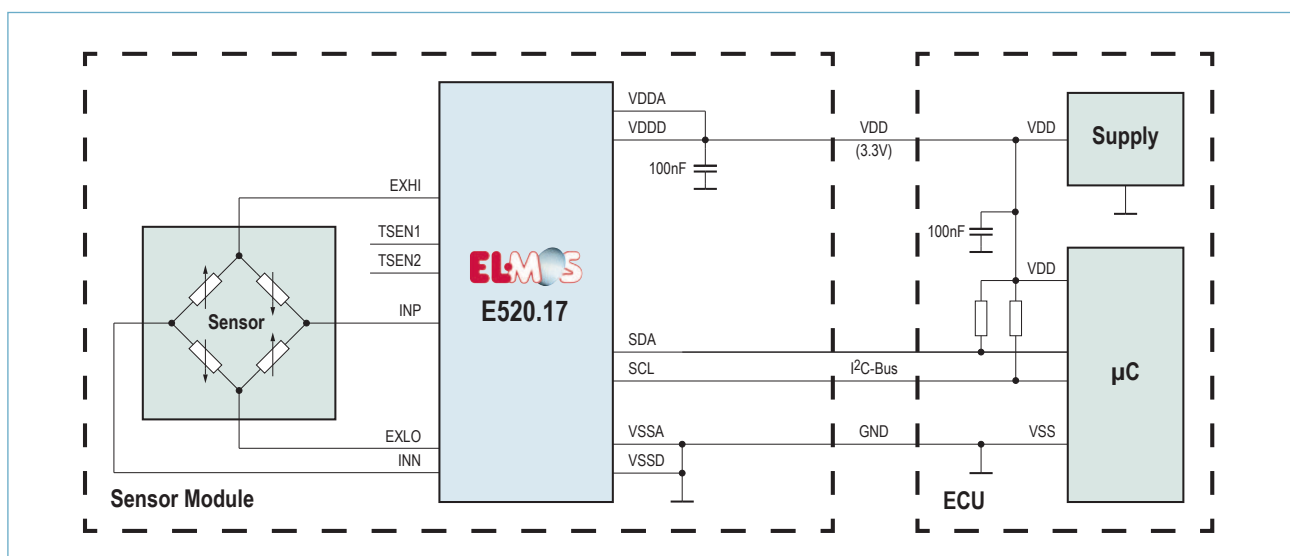
An I²C or an SPI interface can be used for both signal output and configuration/calibration. Additionally two GPIOs can provide digital PWM, alarm functions, etc.

Ordering Information

Product ID	Temp. Range	Package
E520.17	-40°C to +125°C	QFN20L5
E520.17-D	-40°C to +125°C	Die*

*Contact factory for bare die specifications

Typical Applications Circuit



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