

GX1452 Precision Sensor Signal Conditioner

Outputs Supported

- 4–20mA
- 0 to +5V (Rail-to-Rail)
- +0.5V to +4.5V Ratiometric
- +2.5V to $\pm 2.5V$

Benefits and Features

- Provides Amplification, Calibration, and Temperature Compensation
- Fully Analog Signal Path
- Accommodates Sensor Output Sensitivities from 4mV/V to 60mV/V
- Single-Pin Digital Programming
- No External Trim Components Required
- 16-Bit Offset and Span Calibration Resolution
- Supports Both Current and Voltage Bridge Excitation
- Fast 150 μ s Step Response
- On-Chip Uncommitted Op Amp
- On-Chip Lookup Table Supports Multipoint Calibration Temperature Correction Improving System Performance
- Data-Lock Prevents Data Corruption
- Low 2mA Current Consumption Simplifies Power- Supply Design in 4–20mA Applications

Applications

- Pressure Sensors
- Transducers and Transmitters
- Strain Gauges

- Pressure Calibrators and Controllers
- Resistive Elements Sensors
- Accelerometers
- Humidity Sensors

General Description

The GX1452 is a highly integrated analog-sensor signal processor optimized for industrial and process control applications utilizing resistive element sensors. The GX1452 provides amplification, calibration, and temperature compensation that enables an overall performance approaching the inherent repeatability of the sensor. The fully analog signal path introduces no quantization noise in the output signal while enabling digitally controlled trimming with the integrated 16-bit DACs. Offset and span are calibrated using 16-bit DACs, allowing sensor products to be truly interchangeable.

The GX1452 architecture includes a programmable sensor excitation, a 16-step programmable-gain amplifier (PGA), a 768-byte (6144 bits) internal EEPROM, four 16-bit DACs, an uncommitted op amp, and an on-chip temperature sensor. In addition to offset and span compensation, the GX1452 provides a unique temperature compensation strategy for offset TC and FSOTC that was developed to provide a remarkable degree of flexibility while minimizing testing costs.

The GX1452 is packaged for the commercial, industrial, and automotive temperature ranges in 16-pin SSOP.

PART	TEMP RANGE	PACKAGE
GX1452S	-40°C to +125°C	SSOP16

Ordering Information

Ordering Number	Device	Package Type	Moisture Sensity Levels	Stardar Package Quantity	Note
GX1452S-Tu	GX1452	SSOP16	MSL3	80	Tape
GX1452SM-Tu	GX1452	SSOP16	MSL1	80	Tape