



## Strain Gauge & Load Cell Amplifier (SGAMP)

The 24-Bit ADC-to-CAN Amplifier is designed to measure the voltage signal from a strain gauge or load cell with class-leading precision & ultra-low noise, and outputs the raw voltage, temperature, and user-calibrated output with advanced temperature compensation via CAN.

The amplifier measure's differential voltages with a resolution of  $1\mu\text{V}$  and RMS noise of only  $\pm 750\text{nV}$  at a sampling frequency of  $100\text{Hz}$ . The differential voltage and temperature is broadcasted via CAN but it may also be programmed to simultaneously transmit a calibrated output (convert voltage to strain/force) with linear or advanced tabular temperature compensation.



(Strain Gauge Not Included)

### AMPLIFIER SPECIFICATIONS

Differential Voltage Measurement Range, $\Delta V$	$\pm 7.8\text{ mV}$ (limited by 16-bit CAN output)
Maximum Differential Voltage, $\Delta V_{\text{max}}$	$\pm 5.0\text{ V}$
Resolution	$1\ \mu\text{V}$ (limited by 16-bit CAN output)
Accuracy	$\pm 60\ \mu\text{V}$
RMS Noise	$\pm 6\ \mu\text{V}$ at $830\text{Hz}$ $\pm 750\ \text{nV}$ at $100\text{Hz}$ $\pm 500\ \text{nV}$ at $50\text{Hz}$ $\pm 200\ \text{nV}$ at $8\text{Hz}$
(For $350\Omega$ full-bridge strain gauge / load cell with excitation)	
Filter	1 <sup>st</sup> Order Low-Pass Filter, $f_c = 1.6\text{kHz}$
Supply Voltage, $V_s$	5 to 8 V
Supply Current, $I_s$ (typ)	34 mA
Bridge Excitation Voltage, $V_B$	4 V
Maximum Bridge Excitation Current Draw, $I_{B,\text{max}}$	40 mA
Input Impedance, $R_i$	110 k $\Omega$
Recommended Strain Gauge / Load Cell Impedance, $R_B$	350 $\Omega$
Resolution, Temperature Sensor	$0.4^\circ\text{C}$
Accuracy, Temperature Sensor	$\pm 2.0^\circ\text{C}$

### MECHANICAL SPECIFICATIONS

Weight (including wiring harness)	10 g
L x W x H (max), Amplifier	38 x 20 x 5 mm
Protection Rating	IP66
Package Temperature Range, $T_p$	$-40$ to $85^\circ\text{C}$