

SGA Series Strain Gauge Transducer Amplifier

Issue - Sept 2003

Features

- Variable gain sensitivity from 0.06 to 30.3mV/V
- Variable offset upto $\pm 80\%$ full range
- Switched range low pass filter 1Hz to 5KHz
- 10V @ 120mA excitation for up to 4 off 350 ohm load cells
- High stability
- Non interaction gain and offset
- Wide range of power supplies
- Selectable outputs options-0- 5V, 0-10V, $\pm 5V$, $\pm 10V$, 0-20mA or 4-20mA
- High speed, up to 5KHz

Introduction

The amplifier module is primarily intended for use with strain gauge based transducers.

It provides both the excitation supply for the transducer and conditions the signal to provide standard voltage or current outputs.

Physically, it is constructed on a single PCB and can be mounted in an enclosure or supplied simply as a PCB.

Power Supply

Supply Voltage 24VDC (18-28VDC) (Model SGA-D)
110/240VAC (99-120/ 198-253VAC) (Model SGA-A)

Transducer Supply

Transducer Excitation 10 volts DC +/- 3% at 120mA minimum

Transducer Excitation Stability 0.1% in 12 months +/- 0.005%/°C, 0 to + 40°C

Input Characteristics

Type Strain gauge full bridge

Nominal Transducer Impedance 15000 ohms max, 85 ohms min.

Effect of transducer impedance temperature coefficient and input impedance temperature coefficient.
Negligible @ worst case input impedance of 15000ohms.

Common Mode Voltage May be unbalanced by up to 30% max of excitation voltage (10V)

Full Scale Transducer Output Range 0.06 to 30.3mV/Volt (full scale)

Zero Adjustment 0 to +/-80% of full scale input

Zero Temperature Coefficient 0.5 micro-volts/°C max

Long Term Zero Drift 0.10%/year max @ 2mV/Volt

Input Filter Set by dip switches giving -3dB points at nominally 1,5,10, 50, 100,500,1000,5000 Hz cut-off frequencies

In the interests of continued development, we reserve the right to alter product specifications without prior notice.

Output Characteristics

Voltage Output Selectable to +/- 5VDC
+/- 10VDC
0 to 5 VDC
0 to 10VDC

Maximum Load Current Bipolar input (-F.S. to + F.S.) 3mA

Current Output Selectable to 0-20mA
4-20mA

Maximum Loop Drive 500 ohms

Span Temperature Coefficient 0.007% of reading/°C

Overall Input/Output Gain Stability +/- 0.01%/°C maximum

Controls

Potentiometers 1 x fine gain, 1 x fine offset.

Switch Settings DIL switches will be used for:
Coarse Gain
Coarse Offset
Filter: In/Out and cut off frequency
Output Range Selection
Input Filter (1KHz)

Interaction Gain and Offset non-interactive

Physical

Operating Temperature Range 0 to +50°C

Storage Temperature Range -20 to 70°C

Mechanical Supplied with screw clamp terminals capable of accepting wires to 2.5mm²

Case ABS case of maximum external dimensions of 160 x 80 x 55mm.