

Series AP5202

DC Strain Gage In-Line Amplifier



Description

The Series AP5202 is an in-line DC amplifier designed to provide variable bridge excitation and signal conditioning for Stellar Technologies' strain gaged, mV/V pressure transducers, load cells, force sensors, and reaction torque transducers. The AP5202 provides up to 10V output or 4-20 mA output with transducer signals from 10 mV to 10V. This in-line amplifier accepts both uni-polar to bi-polar input signals and can produce corresponding uni-polar and bi-polar voltage outputs. Current outputs are uni-polar. This in-line amplifier provides variable transducer bridge excitation of 3V to 10V. Excitation, coarse gain, fine gain, and fine zero adjustment are provided. In addition, the capability of connecting remotely to an internal shunt calibration resistor is provided. All connections are made using screw-terminals mounted inside the AP5202's durable aluminum enclosure. The aluminum enclosure has an IP65 ingress protection rating.

Standard Features

- **Compatible With Full Bridge Strain Gage Transducers**
- **Rugged IP65 Aluminum Enclosure**
- **Variable Bridge Excitation of 3V to 10V**
- **Voltage and Current Outputs**
- **Accepts Both Uni-polar and Bi-Polar Inputs**
- **Internal Shunt Calibration Resistor**
- **Internal Gain and Zero Adjustments**

AP5202

Series AP5202 Specifications

Baseline Configuration Specs Represented.
Modifications Encouraged - See Below
Custom Designs Available

Performance

Transducer Types

Conventional 4-arm strain-gage bridges, 120 Ohms to 5K Ohms.

Linearity

0.02% of FSO.

Signal Input Range

4mV to 10V.

Bandwidth

5 kHz (typical) as standard; 20Hz with filter on.

Noise

10mV or 30 μ A (typical).

Zero Adjustment Range

$\pm 2V$ or 0-10 mA outputs (typical).
Note: Depends on fine gain setting.

Amplifier Gain Range

1 to 1250.

Shunt Calibration

Remote cal connection to negative supply connects 59K Ohm resistor via relay with 15 to 36 Vdc supply.

Mechanical Characteristics

Configuration

In-line DC strain gage amplifier.

Material of Construction

Aluminum Enclosure with metal cable glands. Cable gland size of 0.12 in. to 0.26 in.

Ingress Protection Rating

IP65.

Dimensions

L=3.86 in., W=2.52 in., H=1.42 in.

Weight

9 oz.

Electrical Characteristics

Supply Voltage (Single)

10 to 36 Vdc, 30 mA (plus transducer and output load)

Note: Must be floating.

Supply Voltage (Dual)

$\pm 5Vdc$ to $\pm 18Vdc$, 30mA (plus transducer and output load).

Analog Outputs

± 3 to $\pm 10V$, 100 mA max.

4-20 mA

(For current output, loop resistance 0 Ohms to 800 Ohms)

Transducer Excitation

3 to 10V (user selectable), 100 mA max.

Input Impedance

>10M Ohm.

Output Ripple

10mV / 30 μ A.

Dimensions (inches)



A = 3.86" D = 1.42"
B = 3.39" E = 1.42"
C = 2.52" F = 0.16"

Environmental Characteristics

Operating Temperature Range

-40° F to +185° F.

(Note: If temperature exceeds 160°F, and 4-20mA output is used, the supply must not exceed 24V).

Zero Temperature Coefficient

$\pm 0.001\%$ FS/°F (typical).

Span Temperature Coefficient

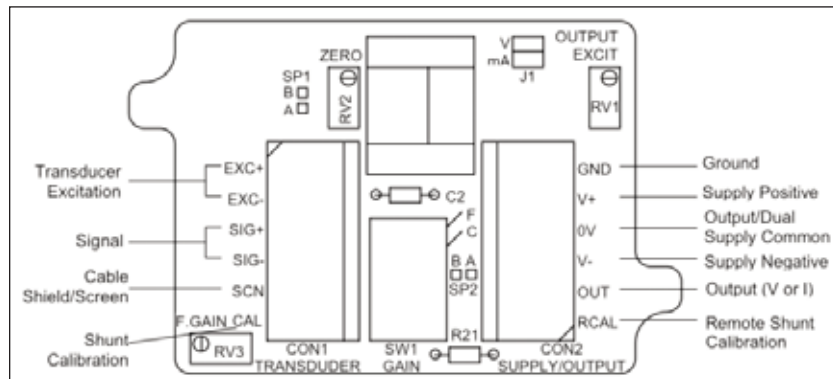
$\pm 0.002\%$ FS/°F (typical).

EMC Specification

When subjected to radiated electromagnetic energy (as IEC 801-3) an additional error can occur at certain frequencies:

Field Strength	Typical Maximum Error
10V/m	5%
3V/m	0.5%

Connection and Controls



Modifications and Warranty

MODIFICATIONS: We realize transducer applications vary greatly and as such our designs are flexible. Choice of pressure port, electrical termination, material compatibility and performance characteristics are a few of the many options available. Specifications on this datasheet represent the standard configuration only. Product and company names listed are trademarks of their respective companies. Specifications subject to change without notice.

WARRANTY: Stellar Technology warrants that its product shall be free from defective workmanship and/or material for a twelve month period from the date of shipment, provided that Stellar Technology's obligation hereunder shall be limited to correcting any defective material FOB our factory. No allowance will be made for any expenses incurred for correcting any defective workmanship and/or material without written consent by Stellar Technology. This warranty is in lieu of all other warranties expressed or implied.