Strain Gauge Bridge Amplifier

Product Summary
The strain gauge bridge amplifier converts the millivolt output of a strain gauge sensor, such as a pressure sensor, to an output in the range of 1 to 6V. It also provides a stabilised supply voltage for sensor excitation. Various amplifier gains are available to suit particular sensors and other gain values can be supplied on request. The amplifier is available as a fully screened and encapsulated unit or as a circuit board for OEM installations.

Application
• Amplification of strain gauge sensor signals.

Electrical
• Gain and offset are shown in the order details. Other values of gain are available and any offset between 0 and 5V can be supplied
• Gain tolerance ±0.5%
• Offset tolerance ±3% (differential input voltage=0)
• Nominal full scale output 6V
• Supply voltage 8.5 to 16V DC
• Supply current 5.5mA max. (excluding load current)
• Load current 10mA max
• Excitation voltage for sensor 5±0.0025V
• Excitation current 10mA max
• Output impedance 50ohm
• Input impedance 10Mohm nominal

Cable and Connection Definition
• Input cable (where fitted) 24 AWG screened
• Output cable (where fitted) 22 AWG un-screened
• Cable length (where fitted) is shown on the order details but any length is available on request
• Various automotive and military standard connectors are available
• Input Connection:

<table>
<thead>
<tr>
<th>Blue Wire</th>
<th>Green Wire</th>
<th>White Wire</th>
<th>Red Wire</th>
<th>Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin A</td>
<td>Pin B</td>
<td>Pin C</td>
<td>Pin D</td>
<td>Pin E</td>
</tr>
<tr>
<td>Pin 1</td>
<td>Pin 2</td>
<td>Pin 3</td>
<td>Pin 4</td>
<td>Pin 5</td>
</tr>
<tr>
<td>Ground</td>
<td>Sensor Signal -</td>
<td>Sensor Signal +</td>
<td>Excitation Supply</td>
<td>Screen</td>
</tr>
</tbody>
</table>

• Output Connection:

<table>
<thead>
<tr>
<th>Red Wire</th>
<th>Green Wire</th>
<th>White Wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin A</td>
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</tr>
<tr>
<td>Pin 1</td>
<td>Pin 2</td>
<td>Pin 3</td>
</tr>
<tr>
<td>Supply</td>
<td>Output Signal</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Mechanical (Encapsulated Unit)
• Weight less than 90g including cable
• Aluminium body in elastomer sheath
• Elastomer boot for strain relief to the interface body

Design and manufacture is in-house, so if our existing designs do not suit your application, we can provide cost effective customised parts to suit even the most demanding application. No engineering charges are made for simple
modifications such as customer specific connectors, cable protection and cable lengths. Please contact our technical consultancy service who will be pleased to help.

**Environmental**
- Resistant to standard motorsport fluids (encapsulated unit)
- Maximum humidity 100% (encapsulated unit)
- Operating temperature -10 to 85°C
- DR25 jacketed cable (encapsulated unit)
- Vibration 50 to 2500Hz @ 40g 8hrs per axis

**EMI/RFI Suppression (Encapsulated unit)**
- The circuit is housed in an aluminium shell. The shell and the input cable screen are terminated to the output ground. Each wire has a 22nF in-line suppression filter.

![Diagram of dimensions](image)

<table>
<thead>
<tr>
<th>Gain</th>
<th>Offset</th>
<th>Dim &quot;X&quot;</th>
<th>Dim &quot;Y&quot;</th>
<th>Ordercode</th>
</tr>
</thead>
<tbody>
<tr>
<td>876</td>
<td>1V</td>
<td>500mm</td>
<td>500mm</td>
<td>0 030 200 005 000</td>
</tr>
<tr>
<td>500</td>
<td>1V</td>
<td>500mm</td>
<td>500mm</td>
<td>0 030 200 005 001</td>
</tr>
<tr>
<td>400</td>
<td>1V</td>
<td>500mm</td>
<td>500mm</td>
<td>0 030 200 005 003</td>
</tr>
</tbody>
</table>

Other Gain and Offset values are available
Gain | Offset | Ordercode  
---|---|---  
400 | 1V | O 030 200 005 004  
200 | 2.5V | O 030 200 005 005

Other Gain and Offset values are available