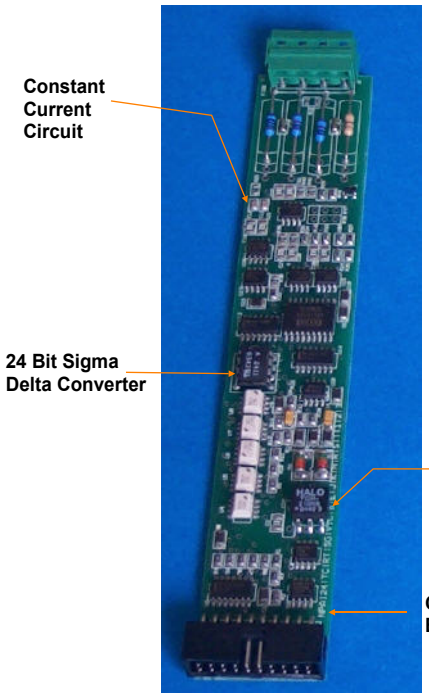
NetPod 4000

Process Measurement Solutions

Precision Strain Gauge Interface Cards

Full ½ and ¼ Gauge Support with Constant Current Excitation

Constant Current Excitation
24 bit & 16 Bit ADC Resolution Options
Individual ADC/card
Strain Gauge Sensor Support For - 120,350,500 & 1KΩ
Supports Full, ½ and ¼ bridge gauges
Sigma Delta ADC Conversion
Inbuilt Signal Conditioning
Simultaneous Sampling
1000V DC Opto-Isolation (Higher levels upon request)



The NetPod 4000 series instruments can be used for high precision strain readings when fitted with a range of strain gauge cards. Optional interfaces are available supporting both 24 bit and 16 bit ADC resolution converters offering the optimum in high resolution, high dynamic range and low noise measurements. The strain gauge interface can be used along side any other sensor input card when creating general purpose instrumentation solutions.

Bridge zeroing is undertaken as a software operation allowing the maximum user flexibility for its configuration. However for static measurements a bridge offset can be assigned that can manually zero the gauge signal response in order to examine drift over time.

The highest precision measurements are made using the full bridge strain gauges and when operating with the constant current sensor excitation the sensor cabling effects are removed from the readings. Any of the strain gauge configurations can be deployed a substantial distance away from the interface card without degrading any measurements.

Part Number	Description
NPAI24-SC1-X-Y-Z	24 Bit Strain Gauge card Const Current Excitation
NPAI16-SC1-X-Y-Z	24 Bit Strain Gauge card Const Current Excitation

X = Bridge Type where 1 = Full Bridge
2 = Half Pridge
4 = ¼ Bridge

Y = Gain Setting = 1,10,100

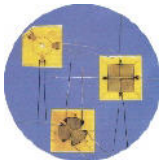
Z = Excitation Current - (15 mA maximum)

Specifications	Table 1
ADC Resolution	Options for 24 & 16 Bit Sig Delta Analogue Conversion
CMMR	160 d B
Current Source Drive Current	8.33 mA excitation Current gauges > 350 Ohm To 15 mA excitation Current 120 Ohm gauge
Drift	10.0 ppm/°C
Sensor Interface	Full, ½ and ¼ gauge 120,350,500, 1kΩ
Measurement Range	+/- 10000 µStrain - Default +/- 50,000 µStrain upon request
Operating Temperature	-20 to 60 Deg C
Short Circuit Current Limit	15 mA max
sample Rate	1- 1KHz/channel
Isolation	1000V DC Standard 3000V DC upon request
Dynamic Response	Sinc Filter
Load Regulation	< 0.005%
Bridge Balancing	Software
Gauge Factor	Typically 0-10 User Defined parameter
Sensor Offset	Set in µVolts - used to zero bridge User defined value
Linearity	± 0.05 worst case

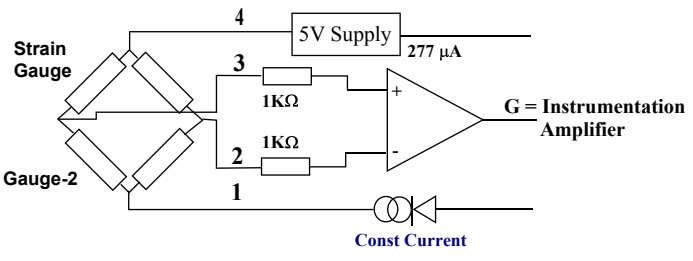
Accuracy in measurement over a wide temperature range is a crucial factor in temperature measurements. The Keynes Controls Strain gauge interfaces are unequaled in performance. Stability over long periods of continued use makes them unmatched in reliability.

The Strain Gauge interface cards can be supplied to User Defined current excitation levels upon request in order to suit any manufacturers gauge requirements.

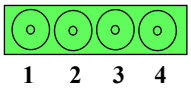
Sample Rate	Noise Peak-Peak	Noise RMS
1	0.65 µStrain	0.14 uStrain
10	0.53 µStrain	0.09 uStrain
100	0.73 µStrain	0.15 uStrain
1KHz	1.72 µStrain	0.35 uStrain



Typical Noise Figures for 350 Ohm Gauge



View looking into card



1	Isink
2	-Vin
3	+Vin
4	5V

Figure 2 shows how a full bridge strain gauge is connected to the Interface Cards

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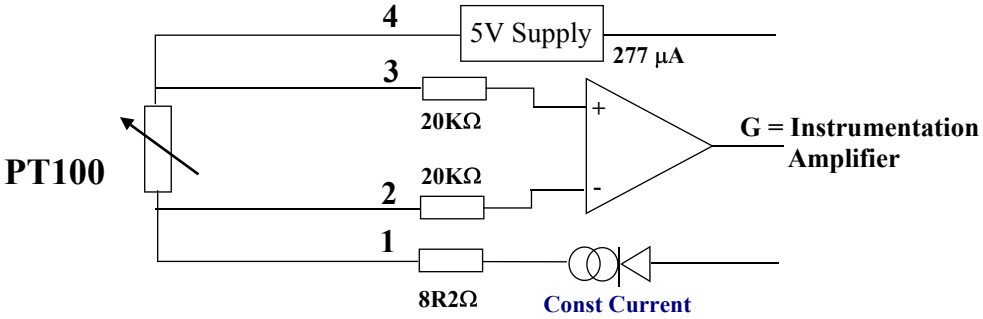
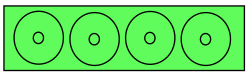


View looking into card



1 2 3 4

1	Isink
2	-Vin
3	+Vin
4	5V