

Strain Gage Signal Conditioner Model SGSC - 3



SGSC-3 is a high accuracy Signal Conditioner for Strain Gage based transducers. Suitable for operating 1/4, 1/2 and full bridge transducers such as force, pressures, tilt and torque transducers.

Method of operation is: dual variable regulated power supply excites the bridge, +IN and -IN connect to isolation instrumentation amplifier. Output of amplifier is fed into double pole filter, then to ZERO and GAIN adjustment amplifier. GAIN adjustment can be done using trimpot P5. ZERO adjustment can be done using trimpot P2. Adequate pins in the connector enable installation of trimpots P2 and P5 outside of the board.

For ease of calibration, or to compensate for long sensor wires, there is an R34 resistor in parallel with the Single STRAIN GAGE. (see next page)

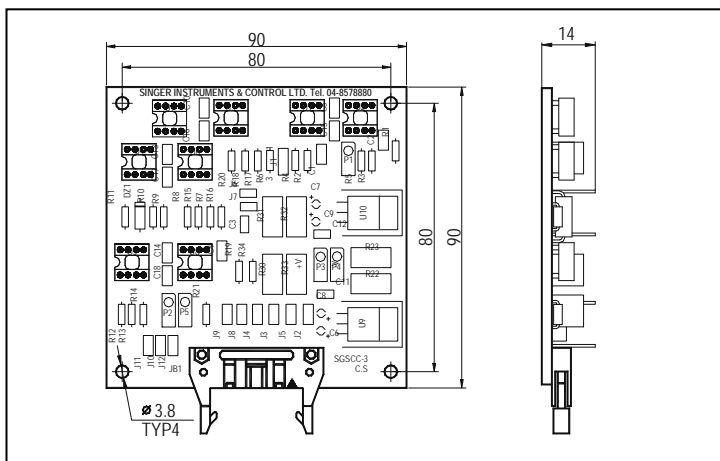
Excitation can vary from 1.5V to 5V, using trimpots P3, P4.
On board connector Molex QF 50™ P/N 90663-3161 (supplied)
Mating connector Molex QF 50™ P/N 90635-1161 (supplied)
Multi – color Flat cable – 300 mm long (supplied)



Specifications:

Excitation	1.5V to 5V
Strain GAGE resistance	60 Ω and up
Power supply requirements	±12V, @ 50mA at no load.
Output Voltage	±10V DC max, @ 25mA max
Sensitivity	1000 x 10 ⁻⁶ strain/V (typical)
Dynamic range	DC to 5kHz
Non linearity	< 0.1% of FS
Operating temperature range ...	0° to +70°C
Warm up time	10 minutes

Dimensions (mm):



Trimmer adjustment

P5	GAIN
P2	ZERO
P3	+EX ADJUST
P4	-EX ADJUST

Wiring

1	BROWN	+V (SUPPLY)
2	RED	GND
3	ORANGE	-V (SUPPLY)
4	YELLOW	+EX
5	GREEN	-EX
6	BLUE	-IN
7	VIOLET	+IN
8*	GRAY	
9*	WHITE	
10*	BLACK	
11*	BROWN	
12*	RED	
14	YELLOW	OUT
15	GREEN	
16	BLUE	

* for outside installation only

Rev.E

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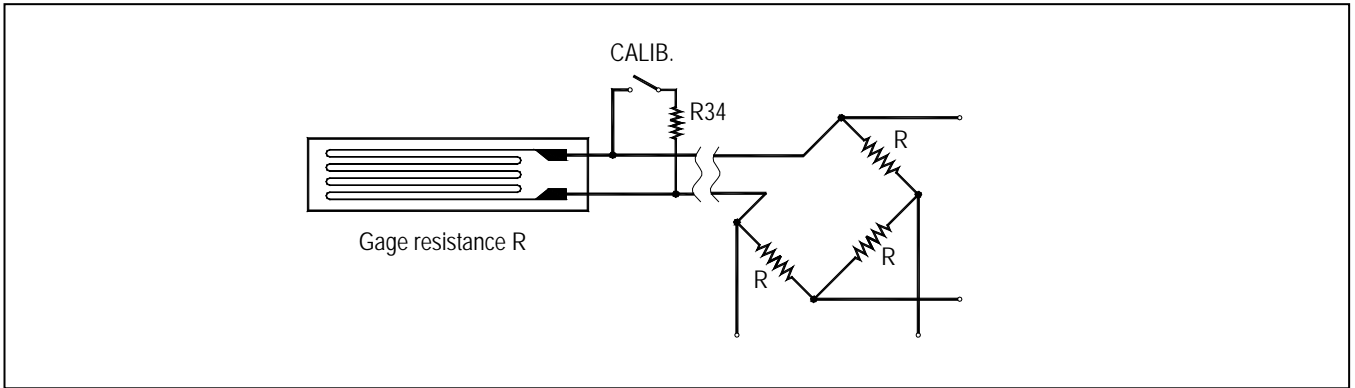
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Calibration Circuit



$$R34 = \frac{R}{K \times \epsilon}$$

where **R** - Gage resistance
K - Gage factor (generally, 2.0)
ε - Strain value to be calibrated

For example:

To generate 1000×10^{-6} strain with **R** = 120Ω and **K** = 2.0 and to determine **R34**,

$$R34 = \frac{120}{2.0 \times 1000 \times 10^{-6}} = 60K\Omega$$

How to order

Ordering example:

Model number SGSC – 3 1/4, 120

(Trimmers on board, 1/4 bridge, Strain Gage resistance 120 Ω)

Model number SGSC – 3A 1/2, 200

(Trimmers supplied apart for outside installation, 1/2 bridge, Strain Gage resistance 200 Ω).

Please specify:

Excitation: from 1.5V to 5V

Sensitivity : strain/V