



# SGCM-401

## Strain Gauge Conditioner Module

### SGCM-401 Strain Gauge Conditioner Module

The Intertechnology SGCM-401 is a DIN rail mountable signal conditioner for use with full-bridge strain gauge based transducers. It can be used to condition the signal from any transducer with an output sensitivity between 0.2 to 15.0 mV/V. The SGCM-401 can be powered from a 24 VDC source and requires approximately 200 mA of current. The power supply inputs are internally isolated to eliminate any grounding or common mode problems thus eliminating the need to have a separate power supply for your signal conditioning.

The SGCM-401 provides a very precise excitation voltage to the transducer at 2.5, 5.0 or 10.0 VDC up to 100 mA. Outputs from the SGCM-401 are selectable as 0 to 10,  $\pm 5$ ,  $\pm 10$ , 0-20 mA or 4-20 mA and are filtered at 1 kHz. Optional high frequency response up to 50 kHz is available. The SGCM-401 also has an externally activated shunt calibration circuit as well as provisions for bridge completion resistors.



#### FEATURES:

- Excellent linearity, high input impedance
- Wide gain range, 0.2 mV/V to 15.0 mV/V
- $\pm 20\%$  zero adjustment
- Outputs:  $\pm 10$  VDC, 0 to 10 VDC,  $\pm 5$  VDC and simultaneous 0-20 mA or 4-20 mA
- Selectable excitation of 2.5, 5.0 or 10.0 VDC
- Externally activated shunt calibration
- Provisions for bridge completion resistors
- Standard DIN rail mount enclosure
- Supply polarity and over voltage protection
- Excitation short circuit protected
- Input voltage spike protected

Power Requirements:	24 VDC @ 0.2A
Line Voltage Regulation:	$\pm 10\%$
Transducer Excitation:	2.5, 5.0 or 10.00 VDC 100 mA (maximum)
Shunt Calibration:	59 Kohm installed (other values optional)
Input Impedance:	>100 Mohms
Sensitivity:	0.2 mV/V to 15.0 mV/V
Full Span Output:	$\pm 5$ , $\pm 10$ or 0-10 VDC simultaneous 0-20 mA
Nonlinearity & Hysteresis:	Less than 0.05% of full span output
Zero Adjustment Range:	$\pm 20\%$ of full span output
Operating Temperature Range:	30°F to 130°F (0°C to 55°C)
Weight:	<250 grams

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### SGCM-401 Set-Up

**Excitation Settings:** The excitation jumpers are located directly above the gain DIP switch and is labeled "JP2 EXCITATION", the settings are as follows:

- 2.5 VDC - Jumper pins 1 and 2.
- 5.0 VDC - Jumper pins 3 and 4.
- 10.0 VDC - Jumper pins 5 and 6.

**Vout Settings:** The Vout jumpers are located in the middle of the conditioner board and are labeled "JP3 VOUT", the settings are as follows:

- 0 to 10.0 VDC - Jumper pins 1 and 2.
- ±10.0 VDC - Jumper pins 3 and 4.
- ±5.0 VDC - Jumper pins 5 and 6.

**Coarse Gain Selection DIP Switch Settings:** The Gain DIP switch is located at the back of the conditioner board and is labeled "GAIN SELECTION". The settings for the gain ranges are as follows:

Transducer output in mV/V	DIP Switches set to "ON" position (Exc. 10 VDC)
0.15 to 0.25 mV/V	2
0.25 to 0.50 mV/V	3 and 4 and 5
0.50 to 0.75 mV/V	5
0.75 to 1.50 mV/V	6 and 7
1.50 to 2.50 mV/V	7
2.50 to 5.00 mV/V	8
5.00 to 10.00 mV/V	9
10.00 to 20.00 mV/V	10
250 to 550 mV/V (2.5 to 5.5 VDC @ 10 VDC Exc.)	NONE (all switches OFF)

Settings for analog output of ±10.0 VDC full scale.

Fine gain control is achieved through the "SPAN" control on the front of the module.

**Zero Adjustment:** The zero control is located on the front of the module and is labeled "ZERO". With this control a ±20% (with a ±10.0 VDC full scale) zero off-set can be applied.

### CONNECTIONS:

