

# MM4051 STRAIN GAUGE (BRIDGE) INPUT TRANSMITTER



## FUNCTION

The MM4051 Strain Gauge Transmitter provides a DC output proportional to the output of a strain gauge or bridge. The MM4051 provides excitation voltage for the bridge and a high quality differential preamplifier to condition the low level output from the bridge.

## DESCRIPTION

The MM4051 excites the bridge with a well regulated DC voltage and monitors the output of the bridge with a high quality differential amplifier. The excitation voltage is adjustable from 4 V to 12 V and can provide a maximum current of 40 mA.

The excitation supply is bipolar (equal positive and negative voltages) and therefore the bridge output is at zero volts with respect to circuit common.

## OPTIONS

The following options are available for the MM4051 Strain Gauge Transmitter.

**U** All circuit boards conformal coated for protection against moisture.

### DC Power

Inverter isolated 12 or 24 VDC power.

## CONTROLS

The MM4051 transmitter contains three calibration controls, zero, span (gain) and excitation voltage.

## CALIBRATION

The transmitters are precisely calibrated to the customer's requirements at the factory. However, it is often necessary to adjust the calibration to match your particular strain gauge, sensor or bridge. To do so, proceed as follows:

Connect the MM4051 to its mating input device, and monitor the output of the module with an accurate digital meter. Bring the input device to its zero or low value load or condition and adjust the ZERO control for the proper output. Raise the input device's load to its full scale value and adjust the SPAN control for the proper output. Repeat the procedure once or twice, the controls may interact slightly.

If it is necessary to recalibrate using electronic inputs, proceed as follows:

First, with no input connected, measure the voltage between +EXC and -EXC using a precision digital volt meter. Adjust the VOLT ADJ control for the desired excitation.

Next, connect a calibrated millivolt signal source between the +SIG and -SIG inputs. Monitor the output of the transmitter with an accurate digital meter. Determine the input voltages corresponding to the low and high ends of your input range. The required voltage equals the bridge sensitivity in millivolts per volt, multiplied by the excitation voltage. For example, a sensitivity of 2 mV/V multiplied by 10 V excitation results in a 20 mV input signal.

Set the input signal to its zero or low value and adjust the ZERO control for the proper output. Increase the input signal to its full scale value and adjust the SPAN control for the proper output. Repeat the procedure once or twice, the controls may interact slightly.

## SPECIFICATIONS

### Input Span Limits

0.5 mV/V to 1 V/V

### Input Impedance

200 kilohms

### Excitation

adjustable 4 V to 12 V,  
40 mA max

### Excitation Stability

±0.04% of span per °C

### Output Limits

Voltage  
-10 to +15 V, 10 mA  
Current  
50 mA, 24 V compliance

### Linearity

±0.01% of span

### Temperature Stability

±0.04% of span per °C

### Common Mode Rejection

120 dB, DC to 60 Hz

### Temperature, Operating

0°C to 60°C (32°F to 140°F)

### Power Standard

115 VAC, ±10%, 50 or 60 Hz

### Optional

230 VAC, 50 or 60 Hz  
12 V or 24 VDC,  
(2.5 W max)

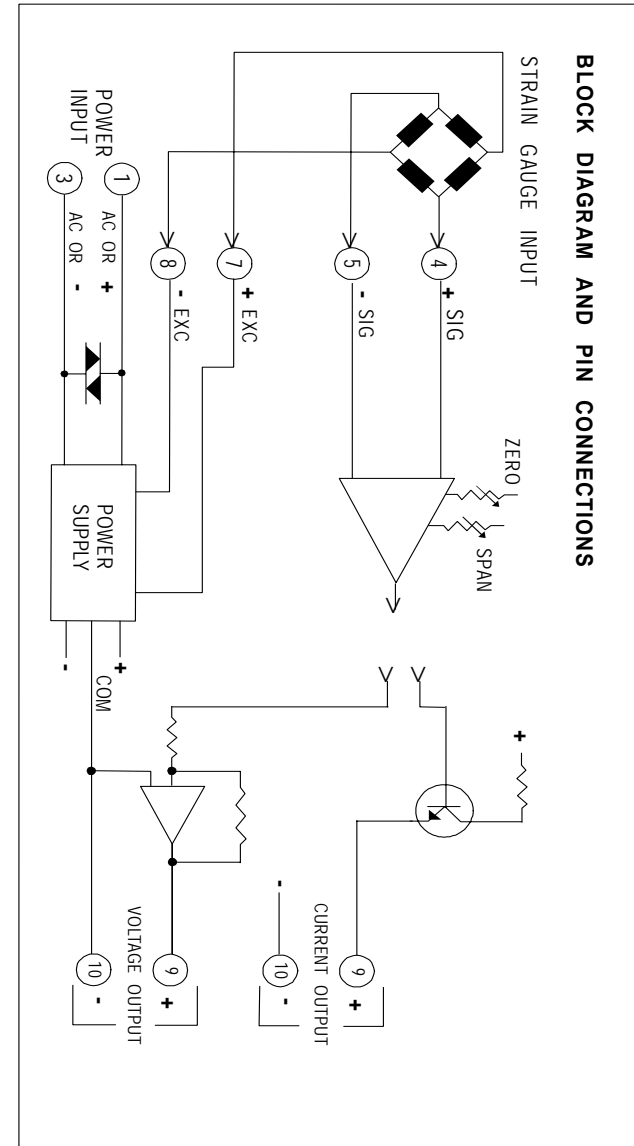
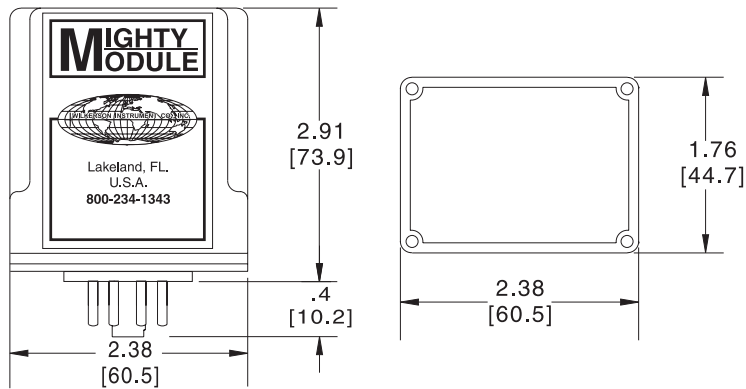
## MOUNTING

The module is designed to plug into a standard 11-pin relay socket. (MP011) is a molded plastic socket that can be mounted on a flat surface or mounted in a piece of PVC track.

## WARRANTY

For any warranty repair or return, please contact the factory at 1-800-234-1343.

## CASE DIMENSIONS INCHES [mm]



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