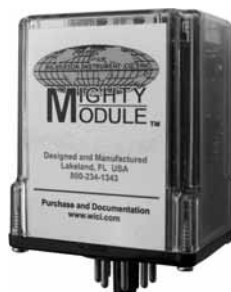


# MM4001 & MM4001ISO RTD INPUT TRANSMITTERS



## DESCRIPTION

The MM4001 modules are used to provide an output voltage or current proportional to an RTD input signal. It is useful in measuring temperatures with a variety of RTD materials.

The module utilizes a single constant-current source to excite the RTD and also has an accurate and stable leadwire compensation circuit for compensating 3-wire RTDs against leadwire effects.

The MM4001ISO utilizes pulse width modulation to develop a pulse train with a duty cycle proportional to input signal amplitude. This pulse train is coupled through a pulse transformer where the duty cycle data is converted to a proportional DC level in the output circuit.

## OPTIONS

The following options are available on the MM4001 & MM4001ISO:

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

### DC Power

Inverter-isolated 12 V or 24 V DC power.

## CONTROLS

Two controls, ZERO and SPAN, are accessible from the top of the module.

## CALIBRATION

The MM4001 modules are shipped precalibrated, if there is a need to recalibrate, proceed as follows:

Refer to the instrument's label to determine your instrument's supply voltage and input and output ranges. Refer to the "Block Diagram and Pin Connections" for pin connections.

Connect a precision decade resistance, potentiometer or RTD simulator to the input. To avoid errors due to the resistances of the connection wires, use a three-wire connection as shown in the "Block Diagram and Pin Connections". Connect a precision DC voltage or current meter to the output.

Set the input resistance to the low end of the input range and adjust the ZERO control for the low-end output voltage or current. Increase the input resistance to full scale and adjust the SPAN control for the full-scale output. Repeat until both readings are correct.

## MOUNTING

The module is designed to plug into a standard 8 pin relay socket. (MP008) is a molded plastic socket that can be mounted on a flat surface or snapped into 2¾ inch wide PVC track (TRK 48).

A spring hold-down clip (CLP1) is available for installations where vibration may be a problem.

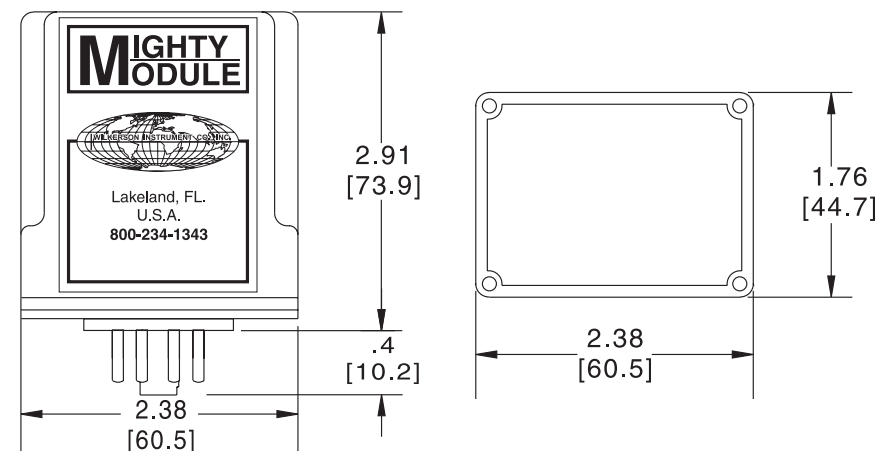
A DIN-rail mounted socket (DMP008) is available for 35mm symmetrical rail.

A Killark HK Series explosion-proof housing with dome and 8-pin socket is available (HKB-HK2D-8).

## WARRANTY

The Mighty Module Series of products carry a limited warranty of 10 + 5 years. In the event of a failure due to defective material or workmanship, during the 10 year period, the unit will be repaired or replaced at no charge. For a period of 5 years after the initial 10 year warranty, the unit will be repaired, if possible, for a cost of 10 % of the original purchase price.

## CASE DIMENSIONS INCHES [mm]



## SPECIFICATIONS

### RTD Input

3-wire or 2-wire, 10 ohms to 2000 ohms

### Input Range

select any range within RTD limit  
[min span 25°F/14°C (100°F/55°C with 10 ohms RTD)]

### Excitation Current

10 ohms 10 mA  
100 ohms 5 mA  
1000 ohms 0.5 mA  
2000 ohms 0.2 mA

### Output Range

Voltage  
select any range from -10 V to +15 V,  
10 mA max load (min span 0.2 V)

Current  
select any range from 0 to 50 mA max,  
>24 V compliance (1200 ohms max at 20 mA)  
18 V compliance for ISO option if fullscale output >20 mA

### Open Sensor Output

≥full scale

### Accuracy

±0.1% of span

### Linearity (Pt RTD, output vs temp)

±0.5% of span, (temp 32°F/0°C)  
±0.15% of span, (temp <32°F/0°C)  
(others, output vs res)  
±0.01% of span

### Temperature Stability

±0.04% of span per °C

### Common Mode Rejection

120 dB, DC to 60 Hz

### Isolation (MM4001ISO)

Output/Input  
>500 megohms  
Breakdown Voltage  
>1000 VAC rms  
Output Ripple (peak-to-peak)  
<0.1% of span  
Breakdown, Pwr/Circuitry  
>1500 VAC rms

### Operating Temperature

14°F to 140°F / -10°C to 60°C

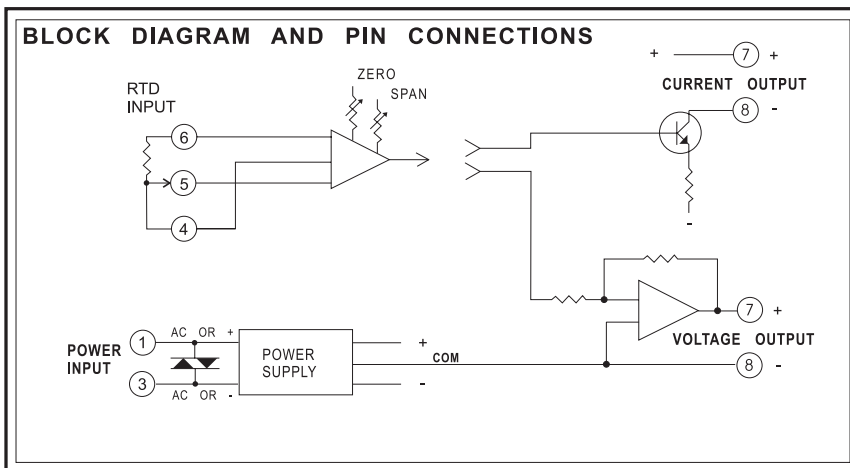
### Temperature Stability

±0.02% of span or 0.025°C/°C,  
whichever is greater

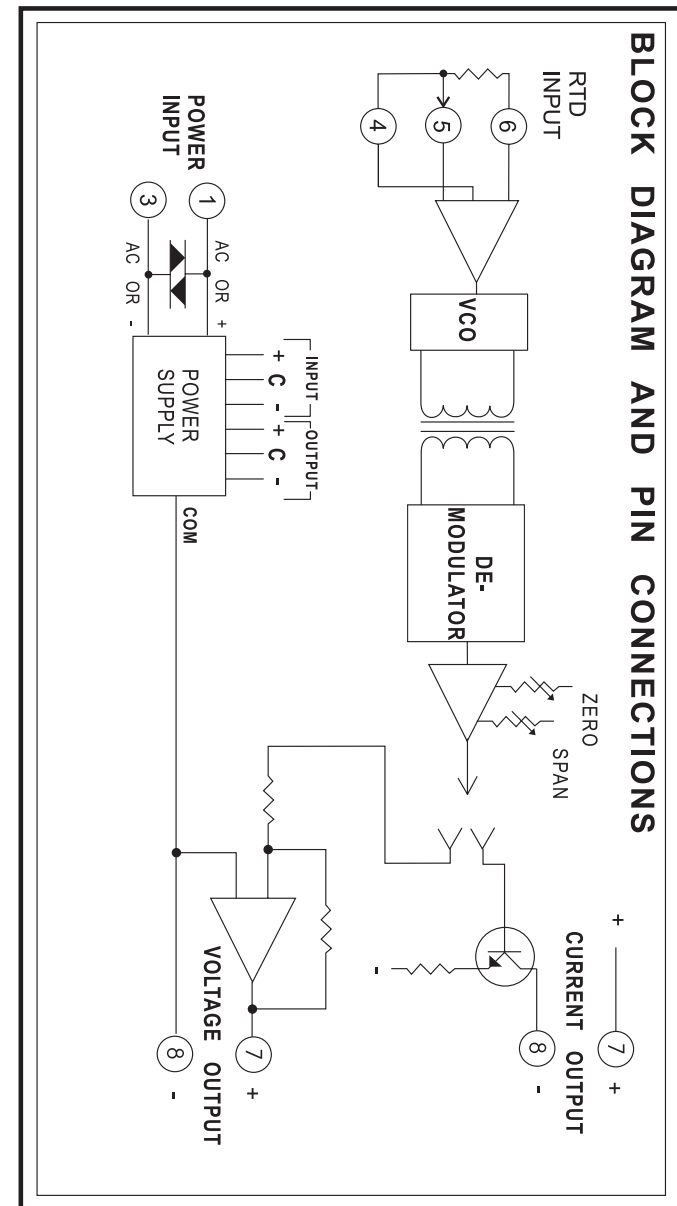
### Power

115 VAC ±10%, 50 or 60 Hz  
(2.5 W max)  
230 VAC ±10%, 50 or 60 Hz  
(2.5 W max)  
(DC Power Option)  
24 VDC (limits 21 VDC to 32 VDC)  
(2.5 W max)  
Isolation, DC power supply to input common: 10 megohms

## MM4001



## BLOCK DIAGRAM AND PIN CONNECTIONS



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