



# MM4130 AND MM4130L

## ISOLATED THERMOCOUPLE TRANSMITTERS

### FEATURES

- Provides a Fully Isolated DC Output Proportional to any Thermocouple Input
- Cold Junction Compensated
- 5 mV Minimum Input Span
- Unlimited\* Choice of Input / Output Ranges
- Upscale Burnout Protection (Downscale Available)
- Choice of Power Options
- 10 Year Warranty

### DESCRIPTION

The MM4130 provides a DC output voltage or current, fully isolated from input, line power and ground, proportional to a thermocouple input signal. It is useful in measuring temperatures with any type of thermocouple. Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

The module utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through an isolator where the duty cycle is converted to a proportional DC level in the output circuits. This isolated output eliminates ground loops, large common mode signals and other types of interference.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the transmitter output will go offscale high. Option B provides downscale burnout protec-

tion (transmitter output grows low).

The MM4130L provides a linearized output. Standard linearization uses analog circuitry, which has certain limitations. Its specifications are summarized in Table 1.

### TYPICAL APPLICATIONS

Eliminates ground loops and common mode signals for temperature monitoring, control and data acquisition.

### SPECIFICATIONS

#### INPUT RANGE

select any type thermocouple  
(min span 5 mV)

#### OUTPUT RANGE

Voltage

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

Current

select any range from 0 to 50 mA max., >24 V compliance  
(1200 ohms max at 20 mA)  
18 V compliance if full scale output > 20 mA

#### OUTPUT RIPPLE (Peak-to-Peak)

< 0.1% of span

#### ISOLATION

Output / Input  
> 500 megohms  
Breakdown Voltage  
> 1000 VAC rms  
Breakdown, Power / Circuitry  
> 1500 VAC rms

#### ACCURACY

±0.1% of span at endpoints

#### LINEARITY, MM4130L

Standard Output / Temp - See Table

#### COMMON MODE REJECTION

120 dB, DC to 60 Hz

#### OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

#### TEMPERATURE STABILITY

±(0.02% of span + 1.3 uV)/°C max

#### POWER

115 VAC ±10%, 50/60 Hz  
(2.5 W max)

230 VAC ±10%, 50/60 Hz  
(2.5 W max)

(DC Power Option)

24 VDC (limits 21-32 VDC)

12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

\* Within specified range limits.

MM4130L STANDARD LINEARIZATION ACCURACY, BASE-METAL THERMOCOUPLES			
T/C TYPE	ZERO BASED RANGES		LOW TEMP RANGES (HIGH END = 0°C)
	LIMIT FOR ±1% OF SPAN	LIMIT FOR ±2% OF SPAN	LIMIT FOR ±5% OF SPAN
E	0/500°C 32/392°F	0/1000°C 32/1832°F	-100/0°C -148/32°F
J	0/1000°C 32/1832°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
K	0/800°C 32/1472°F Cannot linearize Type K Above 800°C (1472°F)		-100/0°C -148/32°F
N	0/500°C 32/932°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
T	0/400°C 0/752°F	0/400°C 0/752°F	-100/0°C -148/32°F
MM4130L LINEARIZATION ACCURACY, PLATINUM THERMOCOUPLES			
T/C TYPE	ZERO BASED RANGES		ELEVATED-ZERO RANGES
B	- N.A. -		±3% of span for 500/1820°C (932/3308°F) ±1.5% of span for 800/1820°C (1472/3308°F)
R & S	±2.5% of span or better, any zero-based range		±1.5% of span or better, any range starting above 200°C (392°F)

**ORDERING INFORMATION**

**POWER**

- 115 VAC, 50/60 Hz Power
- 230 VAC, 50/60 Hz Power
- 24 VAC, 50/60 Hz Power
- 24 VDC, Power, Transformer Isolated
- 12 VDC, Power, Transformer Isolated

**INPUT**

**Select Units**

- Deg C  Deg F

**Enter Input**

Zero Scale

Full Scale

**Select Sensor**

- JTC
- K TC
- R TC
- S TC
- T TC
- E TC
- N TC
- B TC
- Other - Specify in Notes

**Open Sensor Response**

- Upscale  Downscale

**OUTPUT**

**Select Units**

- VDC  mADC

**Enter Output**

Zero Scale

Full Scale

**Enter Output Logic**

- Normal Acting
- Reverse Acting

**OPTIONS**

- Conformal Coating

**TAGS**

**Specify Tag Numbers**

Tag number is typed on product label at no charge.

**Enter Tag Number(s)**

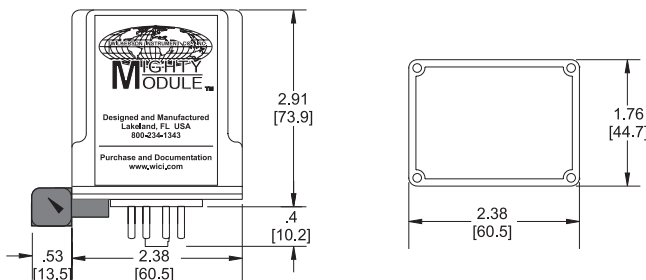
**ACCESSORIES**

**MM4130 AND MM4130L**

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

**DIMENSIONS**

Inches [mm]



**CONNECTIONS**

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
T/C Term +	Input +
T/C Term -	Input -
PIN 6	No Connection
PIN 7	Output +
PIN 8	Output -



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