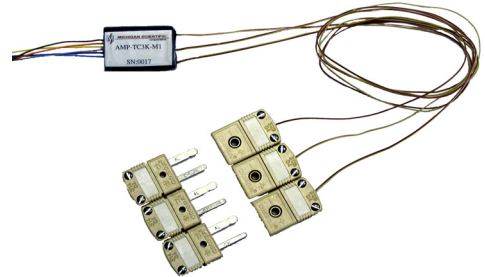


# Thermocouple Amplifier

## Model AMP-TC-M1

- Available with 1, 2 or 3 channels
- Cold junction compensation
- High-level voltage signal output
- Precision, low noise, differential amplifier
- Signal is greatly immune to external noise sources
- Units available in K, J, T, and E types
- Wide signal bandwidth, near 1.16 kHz
- Input signals can be grounded or isolated



**MODEL AMP-TC-M1**  
(Thermocouple Amplifier)

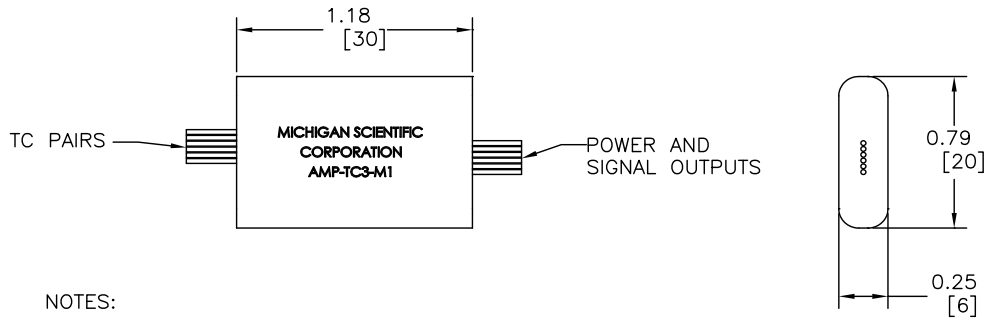
## Description

The *Miniature Thermocouple Amplifier* is designed to provide cold junction compensation and amplification of thermocouple sensors. These amplifiers may be used in conjunction with Michigan Scientific slip rings. Although all Michigan Scientific slip ring assemblies are manufactured with instrumentation quality rings and brushes, superior data accuracy is achieved by locating the thermocouple amplifier on the rotating side of the slip ring. This configuration greatly improves signal quality because the amplifier is located closer to the sensor, which reduces errors due to temperature gradients across dissimilar metals in the slip ring and magnetic interference.

The *Miniature Thermocouple Amplifier* consists of stable differential amplifiers and a cold junction compensator. Each amplifier provides amplification for one, two or three thermocouples depending on the model selected. Amplifiers are available for J, K, E, or T thermocouples. For more channels, more than one amplifier may be used with a single control unit. The amplifiers can be adhered, potted or strapped to many different types of parts. Some Michigan Scientific slip rings are available with the amplifiers built into the rotor.

# Thermocouple Amplifier

## Configuration



**NOTES:**

- [1] POWER AND OUTPUT LEADS ARE 7", BUT CAN BE SPECIFIED BY CUSTOMER
- [2] TC INPUT WIRES CAN BE SPECIFIED WITH / WITHOUT OMEGA MINATURE TC CONNECTOR
- [3] OTHER CONFIGURATIONS AVAILABLE. CHECK WEBSITE FOR DETAILS.
- [4] DIMENSIONS ARE IN INCH [mm]

C566062A.DWG  
10/07/2005

## Specifications

PARAMETER	SPECIFICATION
<b>OUTPUT</b>	Output is not linearized over temperature, if necessary, the output may be linearized externally
Range	± 10V Max
Sensitivity @ 25°C TC Temperature	10 mV/°C
Capacitive load	1000 pF Max
<b>TEMPERATURE ERROR</b>	Includes errors due to cold junction compensator
Initial @ 25°C Case Temperature	± 2°C Max
-25°C to +85°C Case Temperature	± 3°C Max
-55°C to +125°C Case Temperature	± 5°C Max
<b>NOISE</b>	Referred to input of amplifier
0.01 - 10 Hz	0.8 µV p-p
<b>DYNAMIC RESPONSE</b>	
Frequency Response	1.16 kHz
Slew rate	0.4 V / µs
Settling Time 0.1% / 0.01%	40 µs / 50 µs
<b>POWER REQUIREMENTS</b>	
Voltage	± 15 VDC
Quiescent Current	± 5 mA Max Total ( 1 channel )
	± 10 mA Max Total ( 2 channels )
	± 15 mA Max Total ( 3 channels )
<b>ENVIRONMENT</b>	
Specification	-25 to +85°C ( -13 to +185°F)
Operation	-55 to +125°C ( -67 to +257°F)

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