



## Features

- Input to Output Isolation
- Output Suppression
- Cold Junction Compensation
- Open Thermocouple Detector

## DESCRIPTION

This Thermocouple conditioner features greater than 100MegOhms @ 100Vdc input/output isolation. The TC387 has selectable cold junction compensation for types E, B, J, K, R, S, and T. Input signal range is  $\pm 9\text{mV}$  to  $\pm 100\text{mV}$  for  $\pm 10\text{V}$  FS output. A twenty turn potentiometer provides adjustment  $\pm 10\text{V}$  output suppression. Jumper-selected open thermocouple detection is incorporated.

## Specifications

<b>Input Signal Range:</b>	$\pm 9\text{mV}$ to $\pm 100\text{mV}$ for $\pm 10\text{V}$ FS output.
<b>Gain Range Selection:</b>	3-position jumper (input range) High ( $9\text{mV}$ to $25\text{mV}$ ) 1000X Med ( $18\text{mV}$ to $50\text{mV}$ ) 500X Low ( $36\text{mV}$ to $100\text{mV}$ ) 250X
<b>Gain Adjust Pot:</b>	Continuous adjustment from 35% to 110% (20 turn potentiometer).
<b>Suppression:</b>	0 to $\pm 10\text{V}$ output suppression 20 turn potentiometer IN/OUT switch on front panel.
<b>Isolation:</b>	Greater than 100megOhms at 100Vdc between input & output. F option has $\pm 200\text{Vdc}$ rating.
<b>Common Mode Rejection Ratio:</b>	135 db at dc to 60Hz. 100Ohms balanced source. Differential gain of 1000.
<b>Thermocouple Cold Junction Compensation:</b>	Jumper selectable for types: E, J, R, S, B, K, and T Reference junction compensation error typically less than $1^\circ$ for $10^\circ\text{F}$ ambient change.
<b>Thermal Effects (DC Amplifier):</b>	Span $0.005\%/^\circ\text{F}$ typical Zero $0.5\text{mV}/^\circ\text{F}$ referred to input.
<b>Power Consumption:</b>	$\pm 15\text{V}$ @ $12\text{mA}$ , $-15\text{V}$ @ $6\text{mA}$ (as supplied by module case)

## INPUT CHARACTERISTICS

<b>Safe Differential Voltage:</b>	$\pm 20\text{V}$
Differential Input Impedance:	2 MegOhms, paralleled by 1 micro-Farad. (Limited by silicon diodes and 2.2K Ohm resistor above $\pm 0.6\text{V}$ .)
<b>Open Thermocouple Detector:</b>	Jumper-selected 80nA bias current available to detect open thermocouple.

## OUTPUT CHARACTERISTICS

<b>Output:</b>	0 to $\pm 10\text{Vdc}$ @ $\pm 2\text{mA}$ Short circuit proof Not affected by line capacitance.
<b>Output Resistance:</b>	10 Ohms maximum
<b>Output Noise:</b>	10mVrms at maximum gain
<b>Linearity:</b>	0.05% FS, linear amplifier
<b>Low Pass Filter:</b>	0-7 Hz, (-3db)
<b>Operating Modes:</b>	By Jumper Selection
	E6 = TC or dc Amplifier
	E5 = TC compensation, types E, B, J, K, R, S, & T
	E4 = TC compensation, sensor Master/Slave
	E3 = TC compensation, excitation Master/Slave
	E2 = Gain Range; Low, Med, and High
	E1 = TC Open Thermocouple Detector, ON/OFF

**Ordering Information** Specify Model Number & Options as shown below:

# TC387 – R

INPUT OPTION	
F	FRONT PANEL
*R	REAR EDGE CONN.

**\* = STANDARD**



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