

# SHELDON INSTRUMENTS

## SI-TC-K User's Guide

May, 2000

## 1.0 Introduction

The SI-TC-K is a K type thermocouple signal conditioner based on Analog Devices' AD597 IC, for use with the SI-100's Octal Analog card. It has circuitry for signal amplification, and cold junction compensation.

*Note: The SI-TC-K module should only be attached to the '**SINGLE ENDED INPUT**' connector. Before insertion, be sure that all power is turned **OFF** from the SI-100. Extreme caution must be observed in order to prevent damage to either the SI-100 or the SI-TC-K module.*

Because the SI-TC-K is based on the AD597, this document will only address issues associated with signal connection to the SI-100 unit. Here are the modes of operation, which can be referenced to page 4 of the AD597.PDF document:

- 1) Both power supply terminals are connected for bipolar operation, thus allowing for positive and negative temperature variations. The voltage output of the module is  $(-10\text{mV})/(\text{degree Celsius})$ .
- 2) There are eight jumpers, one for each channel, labeled as JMP1-JMP8 that can be used to force the common mode voltage of the thermocouple to within a range that is compatible with the AD597. The jumpers are defaulted in the 1-2 position, thereby connecting the positive (+) terminal to ground. These jumpers can be removed from the AD597 signal path and placed in the 2-3 position if the thermocouple is grounded at some point. Please reference the TC\_K\_Legend.PDF document for the jumper positions.

## 2.0 Connector Pinouts.

The pinouts below correspond to the 37 pin DSUB socket connector on the module that interfaces directly with the thermocouples.

	19	-IN0
none	37	
	18	+IN0
none	36	
	17	-IN1
none	35	
	16	+IN1
none	34	
	15	-IN2
none	33	
	14	+IN2
none	32	
	13	-IN3
none	31	
	12	+IN3
none	30	
	11	-IN4
none	29	
	10	+IN4
none	28	
	9	-IN5
none	27	
	8	+IN5
none	26	
	7	-IN6
none	25	
	6	+IN6
none	24	
	5	-IN7
none	23	
	4	+IN7
none	22	
	3	none
none	21	
	2	none
none	20	
	1	none