TULIP-SC
4-20mA Signal Conditioning Card

JEWELL Instruments

The Tulip-SC is a precision 4-20mA signal conditioning card for use with all Jewell Instruments miniature tilt sensors. Each Tulip-SC card operates one single axis tilt sensor. Tilt output is measured as a 4-20mA output. The Tulip-SC is current loop powered, so measurements can be made over long cable lengths using an economical 2-wire pair. Units also come with an on-board thermistor for measuring temperature. Jewell provides factory calibration for all Tulip-SC electronics when ordered with our 84053 and 84064 Ceramic, or Model 755- and 756- miniature tilt sensors.
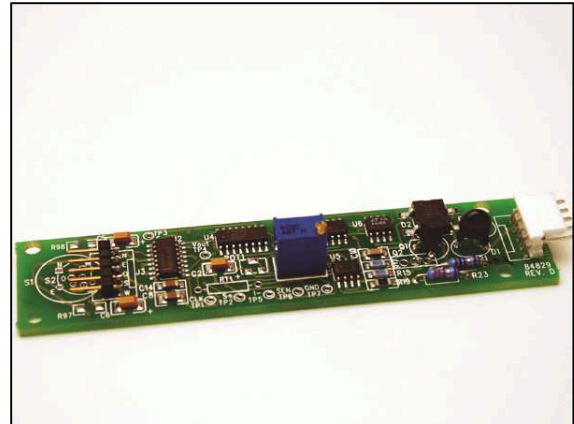
Input Channels	1 Tilt Channel (X or Y)		
Output Signal	4-20mA, 2-wire Current Loop		
Gain Settings	Fixed		
Standard Calibration	Sensor Type	Scale Factor	Linear Range
	755-Series	0.0625°/mA	±0.25°
	756-Series	0.625°/mA	±5.0°
	84053	0.375°/mA	±3.0°
	84064-02	6.25°/mA	±60.0°
Output Filter	0.15 sec[1]		
Temperature Output	2500-Ohm thermistor, on-board (type-B curve)		
Power	(0.02 Ampere x R + 10 VDC) < Vs < 29 VDC		
Environmental	-40 to +85°C operation and storage, 0-90% humidity non-condensing		
Dimensions	4.05 x 0.92 x 0.51 in (103 x 23.4 x 13 mm), 0.5 oz (15 g)		
Materials	Fiberglass PCB, surface mount components		

Specifications subject to change without notice on account of continued product research and development
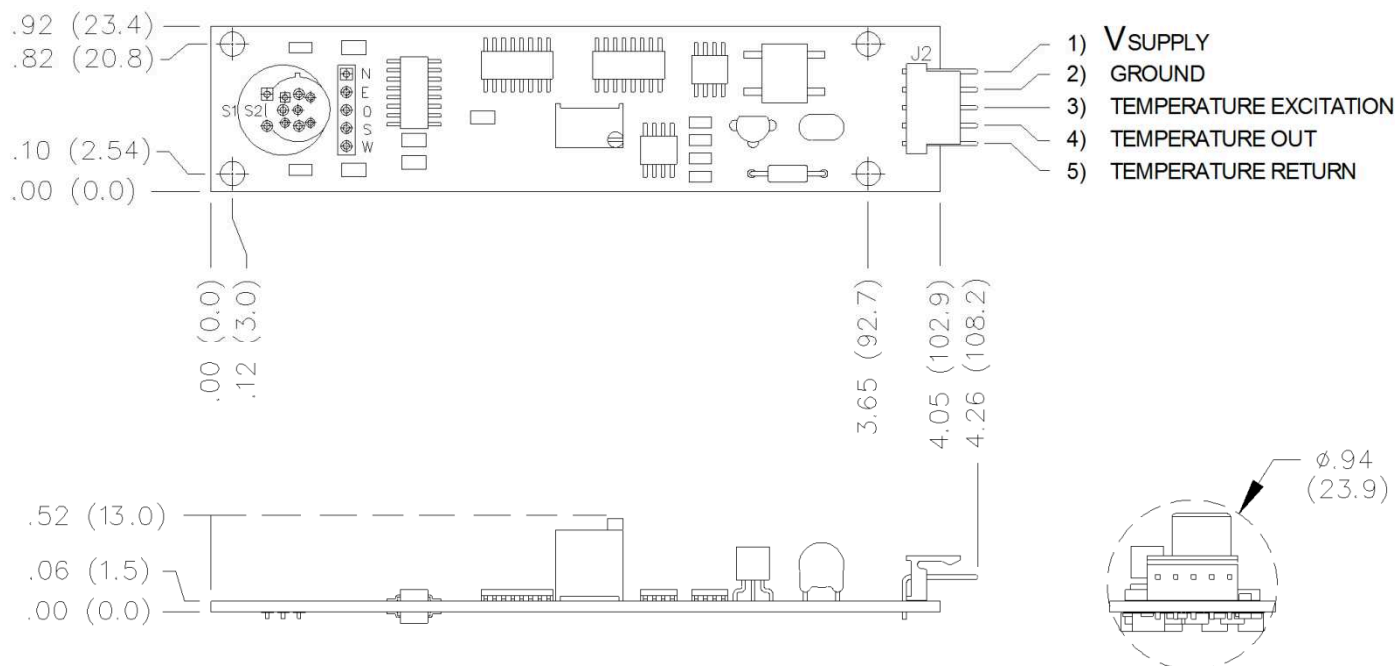
Ordering Code:

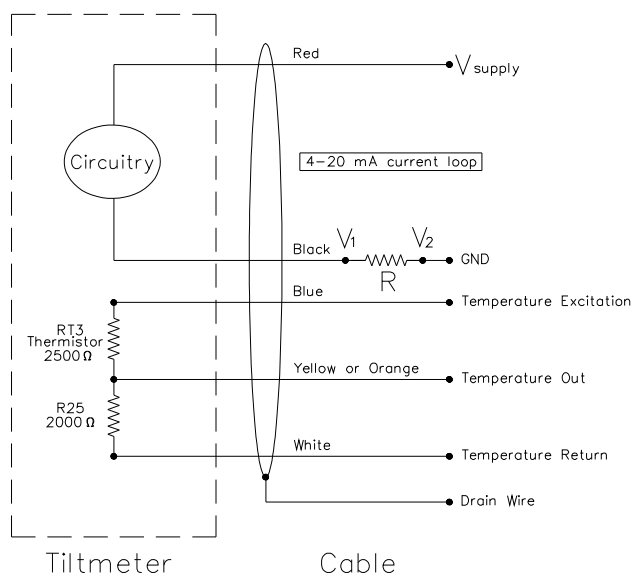| Model no.	Part no.	Description
TULIP-SC	84829	Tulip Signal Conditioning Card, 4-20mA, Single Channel, Fixed Gain and Filter
70382-03	70382-03	Miniature Tilt Sensor Hookup Cable, 9-conductor (3 twisted shielded triples), specify required length on order

Dimensions:

1) V SUPPLY
2) GROUND
3) TEMPERATURE EXCITATION
4) TEMPERATURE OUT
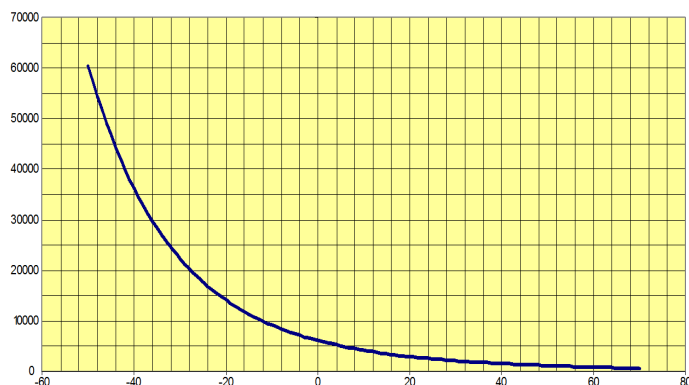5) TEMPERATURE RETURN

Dimensions in inches (mm)

Circuit Diagram:

Thermistor Output:

Resistance (ohms) vs. Temp
(U.S. Sensors LR252B1K, Type-B Curve)

$$T = 1/[A + B \, Ln(RT3) + C \, Ln(RT3)^3 + D \, Ln(RT3)^5] - 273.15$$

where T is in degrees Celsius and RT3 = thermistor resistance.
A = 7.34862E-04; B = 3.38205E-04; C = -1.30862E-07; D = 1.21751E-09

Jewell Instruments LLC 850 Perimeter Road, Manchester, NH 03103
sales@jewellinstruments.com • www.jewellinstruments.com • Tel (800) 227-5955

L00014 Rev. B