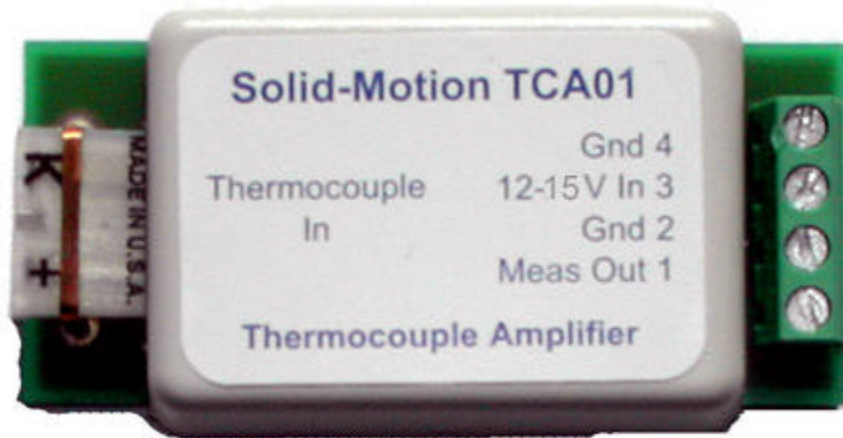


Solid-Motion TCA01 User Instructions



The Solid-Motion TCA01 is designed to amplify and filter small thermocouple voltage and output signals. The output of the TCA01 ranges from 0 to 10V and may be connected to an analog-to-digital converter (ADC), such as a Dataq, for digitization and display on a PC.

A battery voltage of anywhere from 12V to 15V may be used to power the TCA01.

Features

Cold junction compensated

$\pm 0.5^{\circ}\text{C}$ linearity

10Hz 2-pole butterworth output noise filter

0-10V output. 0-5V output also available

Diode protected battery connection. Accidentally reversing the supply connection won't destroy the amplifier

Supply voltage 12V to 15V

High quality Phoenix terminal block connectors

High quality Omega thermocouple connector

Specifications

Input temperature range

As ordered

Output voltage range

10V

Nonlinearity

$\pm 0.5^{\circ}\text{C}$

Gain tempco

$\pm 10\text{ppm}/^{\circ}\text{C}$

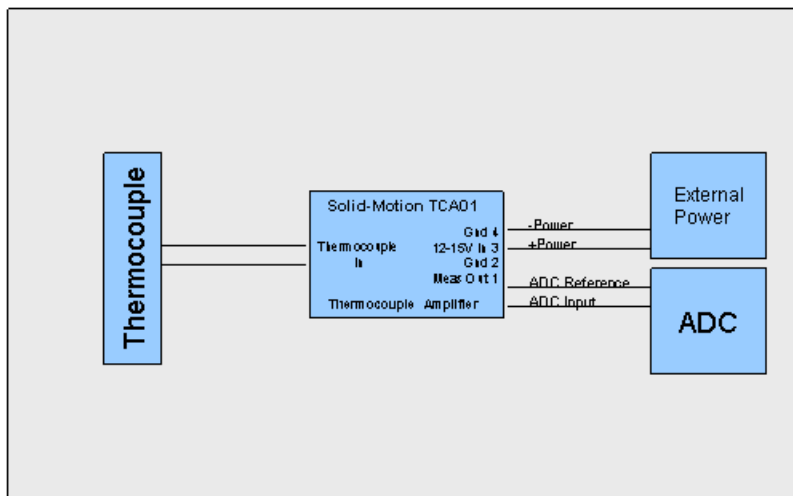
Offset voltage drift

$(\text{gain}) \times (\pm 0.05\mu\text{V}/^{\circ}\text{C})$

Gain

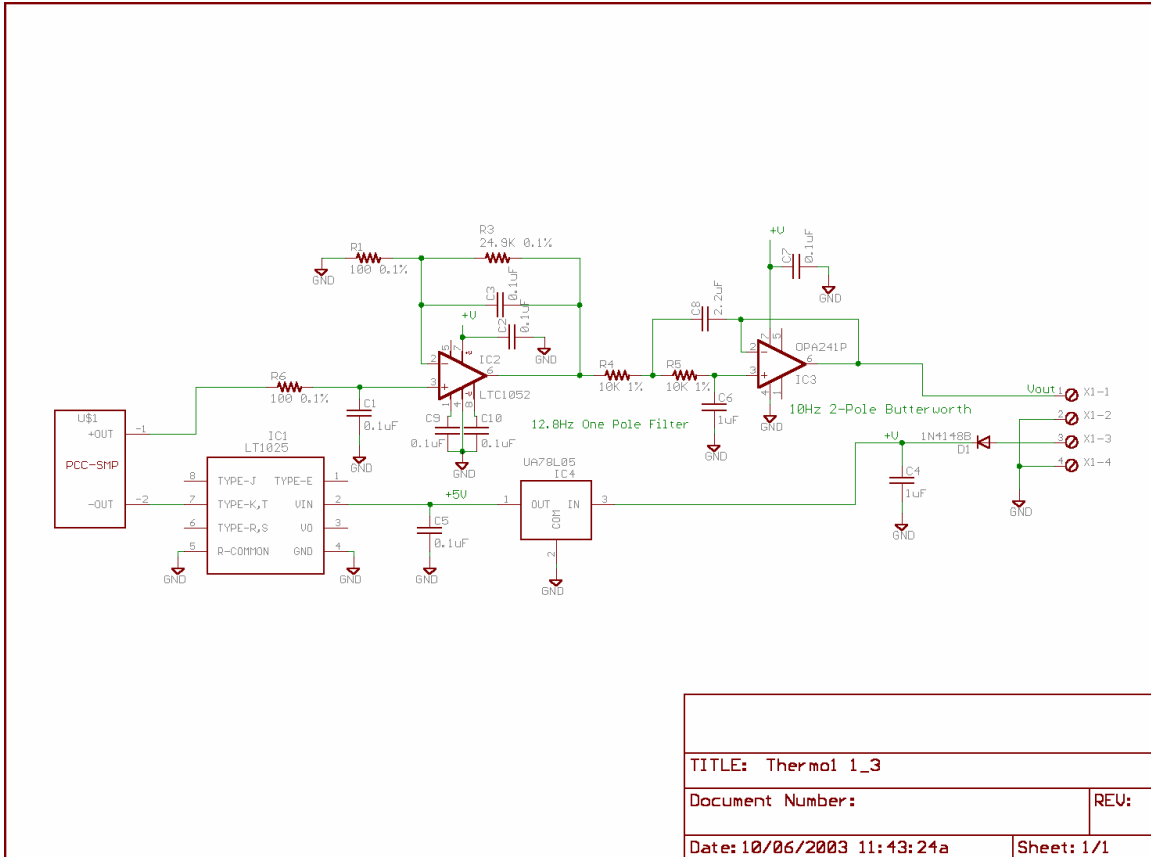
| <i>Thermocouple</i> | <i>Gain</i> | <i>mV/°C at Output</i> |
|---------------------|-------------|------------------------|
| J type 200°C | 980 | 50.00 |
| J type 750°C | 261 | 13.33 |
| K type 200°C | 1250 | 63.75 |
| K type 1000°C | 250 | 12.75 |
| K type 1250°C | 200 | 10.20 |

TCA01 Connections



1. Hook up the thermocouple as indicated.
2. Hook up a 12V to 15V power source.
3. Hook up the ADC reference to pin 2 of the output. Hook the ADC input to pin 4 (Meas).

4. Schematic



Troubleshooting

If no signal shows up in the Dataq oscilloscope with a thermocouple connected, try these fixes:

1. Make sure the supply voltage is at least 12V.