

TH7

R.P.Clark

October 27, 2018

Abstract

This leaflet describes the TH7 generic thermocouple reader pi-hat/PCB for the raspberry pi.

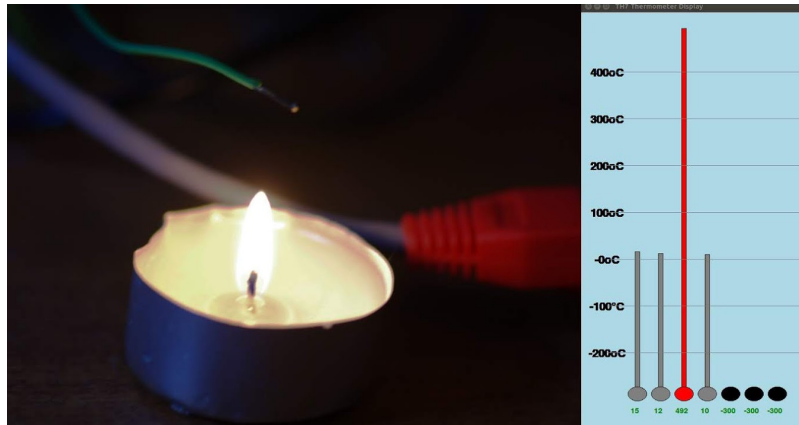


Figure 1: Thermocouple over a tea light flame at circa 500°C .

1 TH7 description

The TH7 is a raspberry pi hat (see figure 3 with on board PCB temperature measurement that provides seven thermocouple inputs. Uncalibrated this gives a typical accuracy of $\pm 2^{\circ}\text{C}$. It also provides two user programmable LEDs and displays the supply voltage to the pi.

It ius a generic thermocouple reader, and therefore should work with any thermocouple. Software support has been written for the 'k' type only currently.

The TH7 offers:

- Full cold junction compensation
- Loss of/disconnection of thermocouple detection
- Seven inputs
- Uses the raspberry pi standard python SPI interface
- Python coding examples (<https://github.com/robin48gx/TH7>).

2 Instructions

Connect the thermocouples using the hital tech connectors and ensdure the wires make contact with the connector metal clams (see figure 2. Always apply insulation to the thermocouples (i.e. do not ground them). Epoxy resin is often useful for gluing thermocouples to devices under long term temperature test.

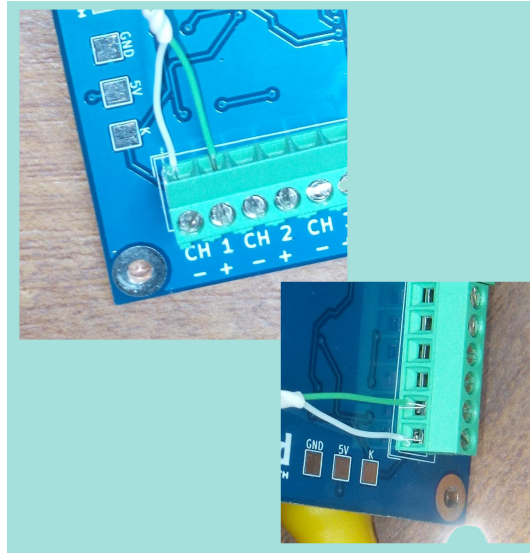


Figure 2: Wiring European standard 'k' type thermocouples Wiring. The green is plus and the green and white is minus. Other countries may use different colour schemes. If the thermocouple is inserted with incorrect polarity temperature will be seen to go down when heat is applied to it.

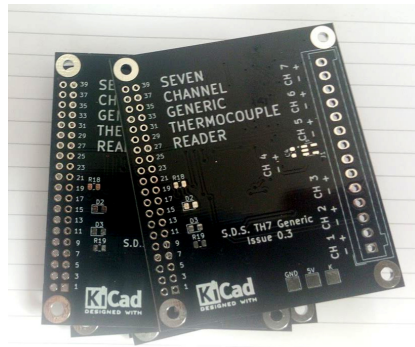


Figure 3: TH7 thermocouple interface PCB/pi Hat