



MC-EX-TC4 Expansion Module

Thermocouple Input

Startup Guide

Startup Guide

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Introduction

SensOper MC-EX-TC4 expansion module is an advanced module can be use with CPU module.

This Thermocouple Input module have I2C interface via SPI for establish communication between CPU module.

Changing DIP switches configuration the I2C address can be changed.

Four Thermocouple Inputs read -270 °C to +1800 °C range heat source readings.

This module internal operation power is 5V DC / 30mA.

The 40 pin board to board connectors were included for make connection between CPU module or other expansion modules.



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1. Connecting with Power & Input Terminals

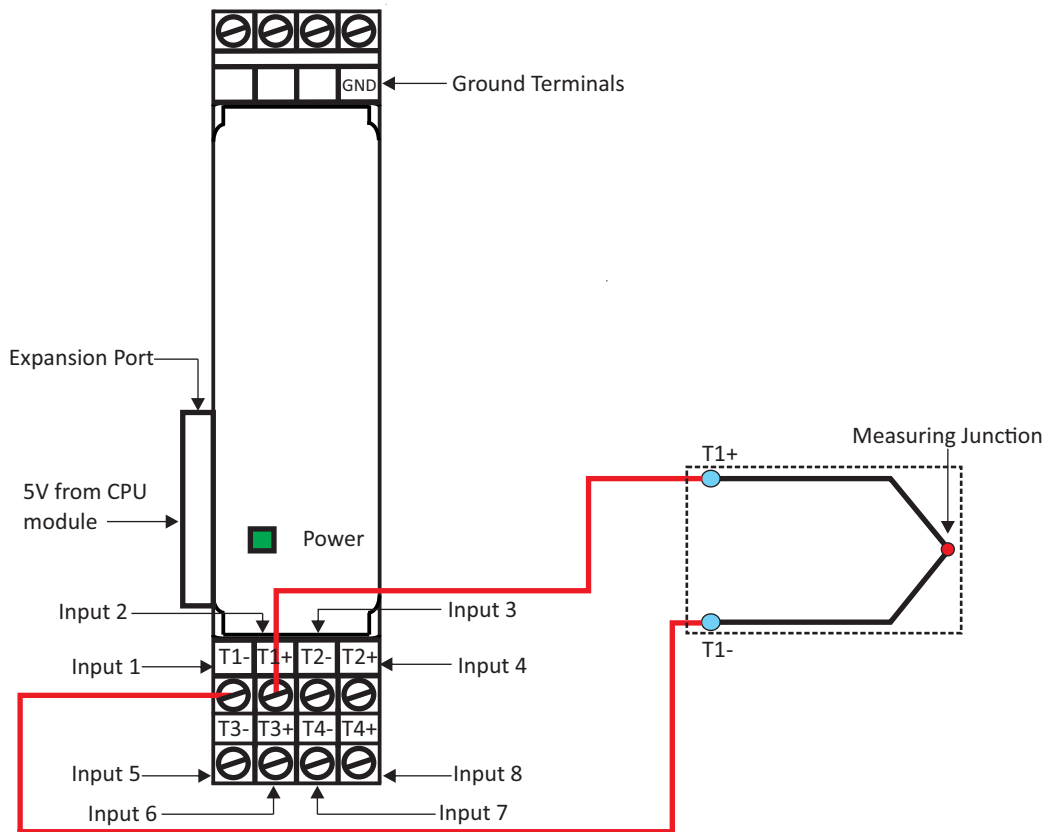


Figure 1(a): Thermocouple Input Expansion module power up and Input wiring.

CPU Module and Expansion Module GPIO Connection Diagram

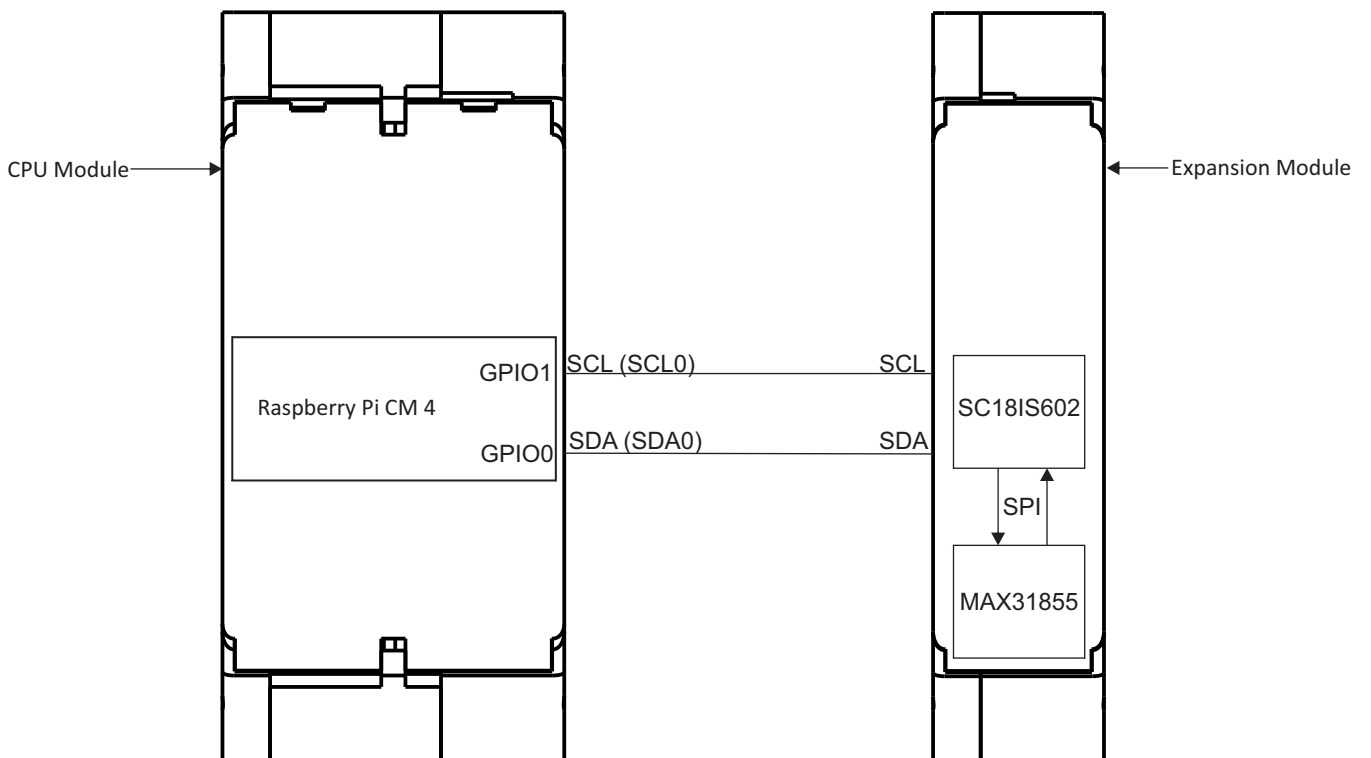


Figure 1(b): The GPIO connection with CPU module and Expansion Module.

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2. Run Example Program

1. After following Figure 1(a), (b) diagram instructions in previous sections 1 . Connect a Thermocouple Input Expansion module in to the 40 pin board to board connector in CPU Module (Explained in MC-CPU-CM4-Gx datasheet).
2. Now open Terminal Window after turn on the CPU Module.
3. Type '**i2cdetect -y 0**' command and run the command.
4. The result will be similar to the Figure 2 shown below.
5. Here the '**2f**' is the Thermocouple Input expansion module I2C address, This I2C address can be changed according to user requirement by changing the DIP switches configuration on expansion module.

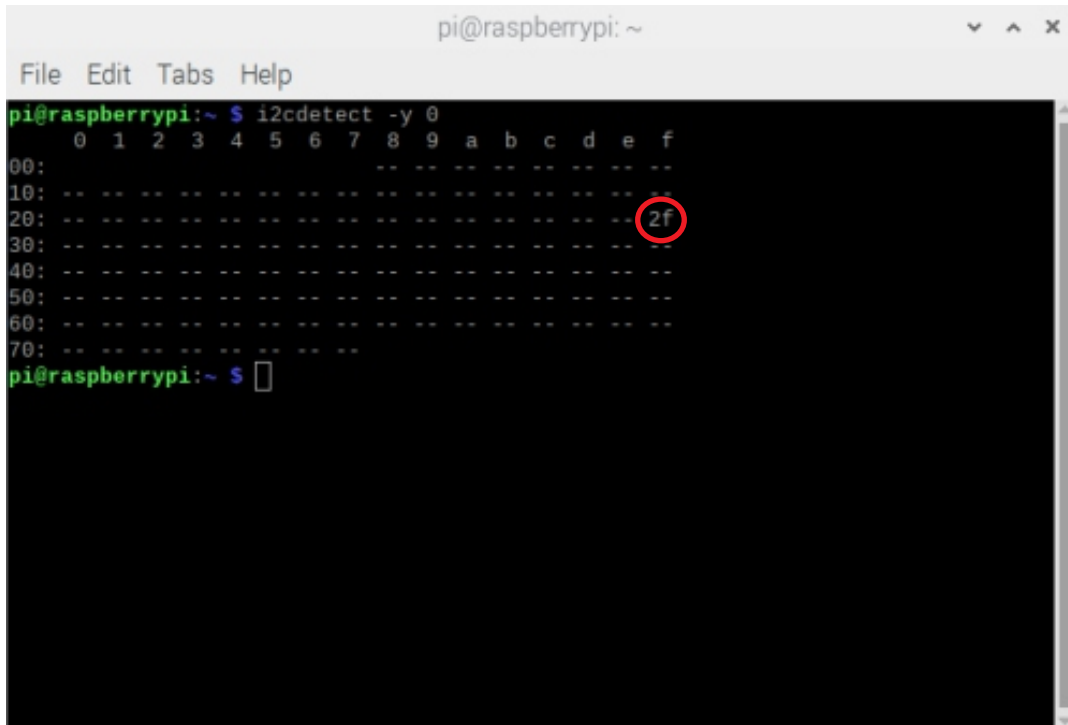


Figure 2: The Thermocouple Input Module I2C address check result .

6. Follow the **File Manager > Pi > Rpi_Moduler_test** path, then open **Rpi_Moduler_test** folder.
7. In **Rpi_Moduler_test** folder include example program for every expansion module.
8. Select the **MC_EX_Thermo_IN_v2.py** example program that matches with the Thermocouple Input expansion module shown in Figure 3.

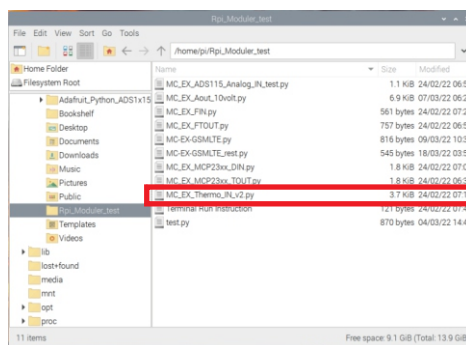


Figure 3: The example programs for expansion modules.

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5. The python program will open on default Thonny Python IDE. Click RUN for start the program shown in Figure 4.

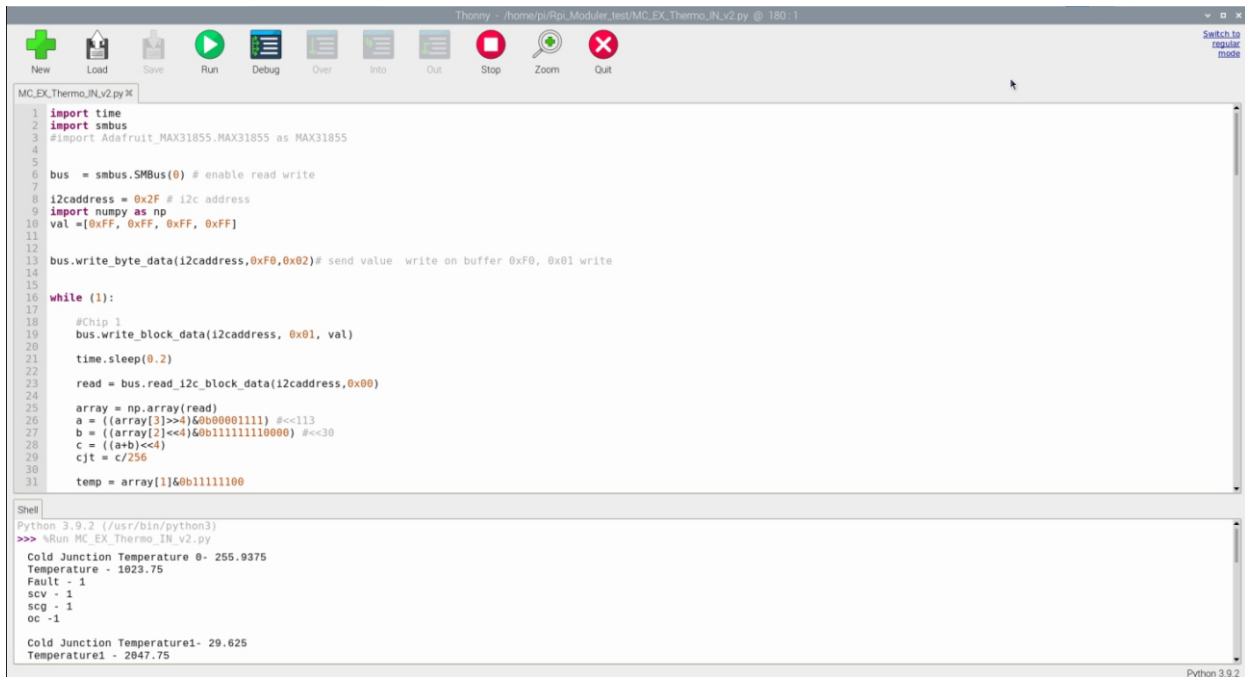


Figure 4: Thermocouple Input example code run on Thonny Python IDE.

Table 1: DIP Switch Table.

| Address | DIP Switch A2 | DIP Switch A1 | DIP Switch A0 |
|---------|---------------|---------------|---------------|
| 40 | OFF | OFF | OFF |
| 41 | OFF | OFF | ON |
| 42 | OFF | ON | OFF |
| 43 | OFF | ON | ON |
| 44 | ON | OFF | OFF |
| 45 | ON | OFF | ON |
| 46 | ON | ON | OFF |
| 47 | ON | ON | ON |

***Read the Product label for more details about DIP switch configuration.**

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3. Revision History .

The table shown below include the revision history of this document.

| Revision Number | Date | Substantial Changes |
|-----------------|-----------|--------------------------------|
| 0 | 18/3/2022 | First Edition of Startup guide |
| 1 | - | - |

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