



## **MC-EX-ND8 Expansion Module**

**Digital Input**

**Startup Guide**

## Startup Guide

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## Startup Guide

### Introduction

SensOper MC-EX-ND8 expansion module is an advanced module can be use with CPU module.

This Digital Input module have I2C interface for establish communication between CPU module.

Changing DIP switch configuration the I2C address can be changed.

Eight Digital Inputs are optically isolated internally for protection of the device.

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

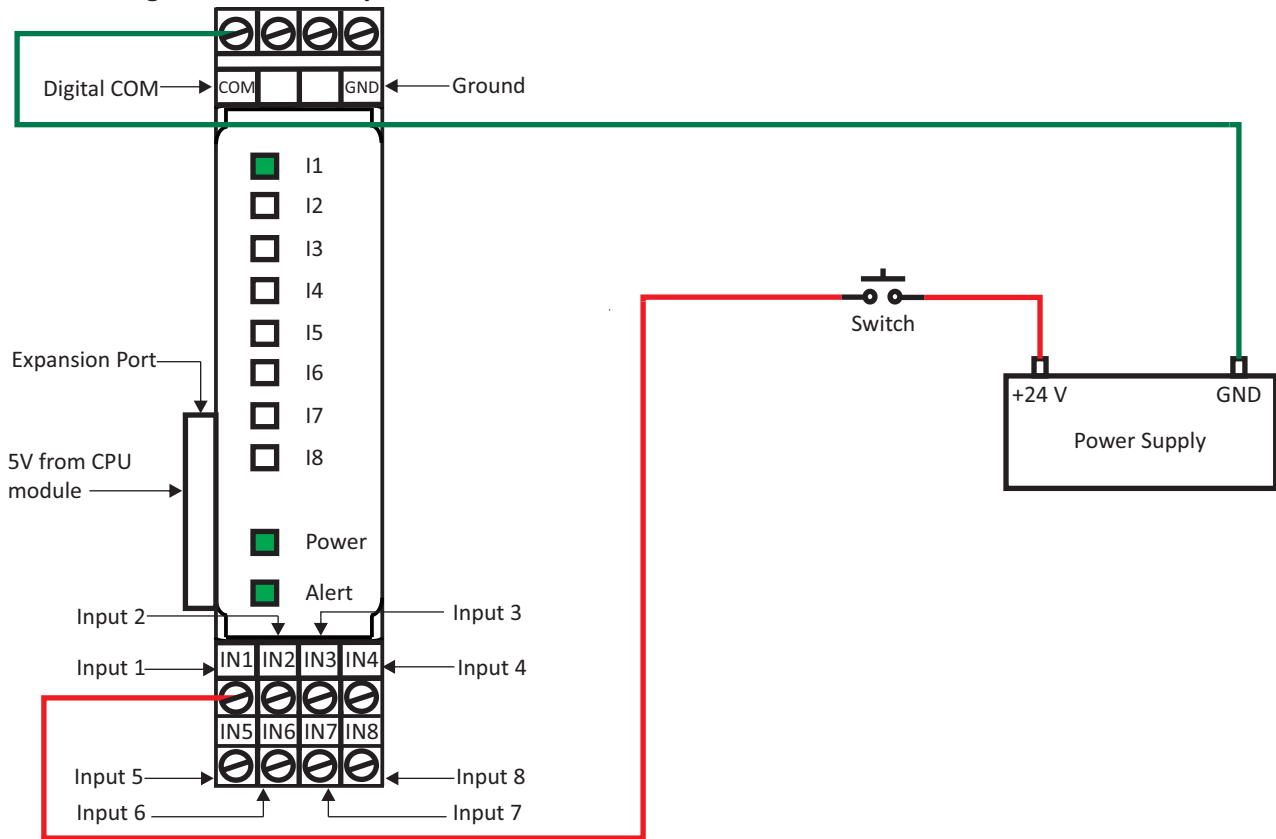


Figure 1(a): Digital Input Expansion module power up and Input wiring (Source Configuration).

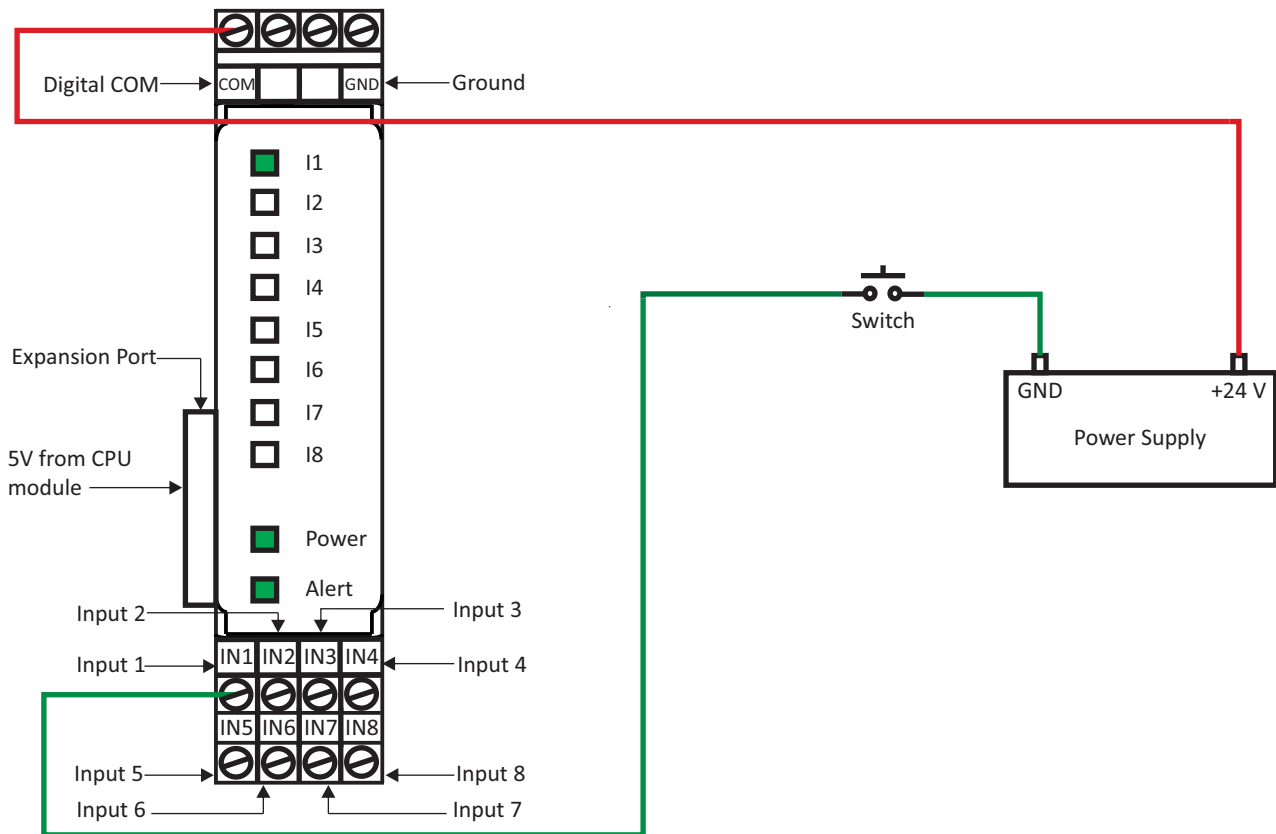


Figure 1(b): Digital Input Expansion module power up and Input wiring (Sink Configuration).

\*Make sure not turn on all DIP switches at same time.

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### CPU Module and Expansion Module GPIO Connection Diagram



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

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### 2. Run Example Program

1. After following Figure 1(a), (b), (c) diagram instructions in previous sections 1 . Connect a Digital 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 '**23**' is the Digital Input expansion module I2C address, This I2c address can be changed according to user requirement by changing the DIP switch configuration on expansion module.

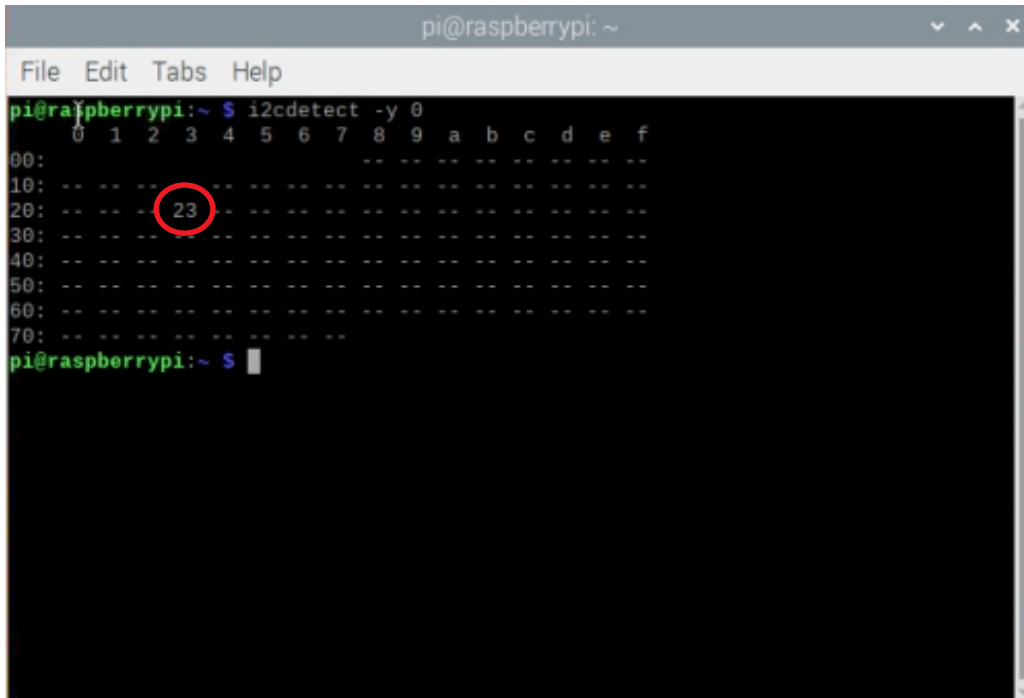


Figure 2: The Digital Input Module I2C address check result .

6. Follow the **File Manager > Pi > Rpi\_Moduler\_test**, then open **Rpi\_Moduler\_test** folder.
7. In **Rpi\_Moduler\_test** folder include example program for every expansion module.
8. Select the **MC\_EX\_MC23xx\_DIN.py** example program that matches with the Digital Input expansion module shown in Figure 3.

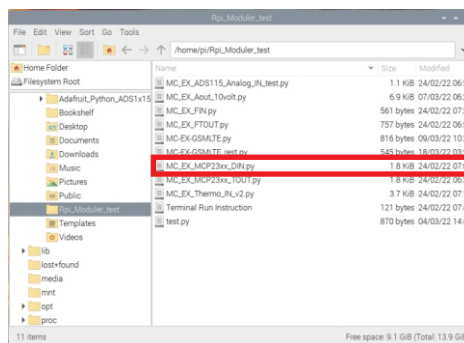
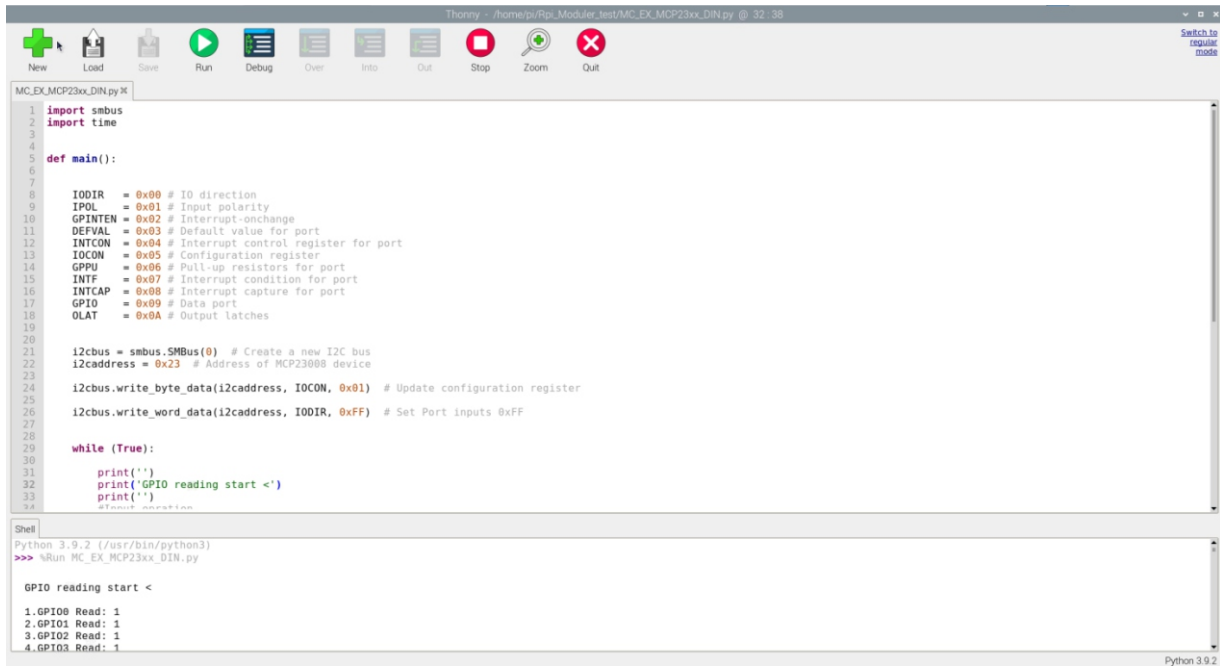


Figure 3: The example programs for expansion modules.

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



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

**Table 1:** DIP Switch Table.

Address	DIP Switch A2	DIP Switch A1	DIP Switch A0
32	OFF	OFF	OFF
33	OFF	OFF	ON
34	OFF	ON	OFF
35	OFF	ON	ON
36	ON	OFF	OFF
37	ON	OFF	ON
38	ON	ON	OFF
39	ON	ON	ON

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

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### 3. Revision History .

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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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