

LAB N°07

Arduino-Raspberry Wired Communications
I2C

I. THEORY: (max 01 page to 02 pages)

- 1.1.1. Theoretical study on I2C and SPI communication and comparison of SPI, I2C, and UART protocols. (01 pages).
- 1.1.2. Theoretical study of I2C of an Arduino MKR1010 pins and software (**Library**) related to I2c and **Analog-to-Digital Converter ADS1115**.
- 1.1.3. Theoretical study of i2c of Raspberry pins and software (**Library**) related to I2c and to **Analog-to-Digital Converter ADS1115**.

II. ACTIVITY: (max 04 pages)

Devices Communication with Arduino and/or Raspberry Pi via I2C

The component CAN ADS1115 (Fig.1) will be used with respectively Arduino and Raspberry. (It is worth noting to draw for each following Lab the detailed schematics).

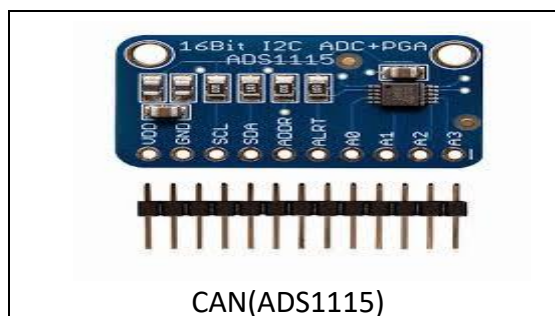


Fig 1 Analog-to-digital converter with I2C bus interface

a) Arduino- I2C (with CAN ADS1115)

Connect the external CAN converter (Fig.1.) to the I2C bus with Arduino MKR1010. (Max 02 pages)

- 1. Configure the system and test it with an analog sensor, the LDR sensor.
- 2. Configure the system and test it with a force sensor.

b) Raspberry -I2C(with CAN ADS1115)

Connect the external CAN converter (Fig.1.) to the I2C bus with Raspberry PI-4. (Max 02 pages)

- 1. Configure the system and test it with an analog sensor, the LDR sensor.
- 2. Configure the system and test it with a force sensor.

III. CONCLUSION

Conclude and synthesize the outcomes of different labs succinctly by highlighting their important results.