Advantech AE Technical Share Document

Date	2020 /	**Release Note**	□ Internal ■ External
Category	■FAQ □SOP	**Related OS**	Ubuntu 18.04
Abstract	FAQ_How to test GPIO function in wet or dry contact mode in Linux		
Keyword	UNO-1372G-E, GPIO, Ubuntu 18.04, Linux		
Related Product	UNO-1372G-E		

■ **Problem Description:**

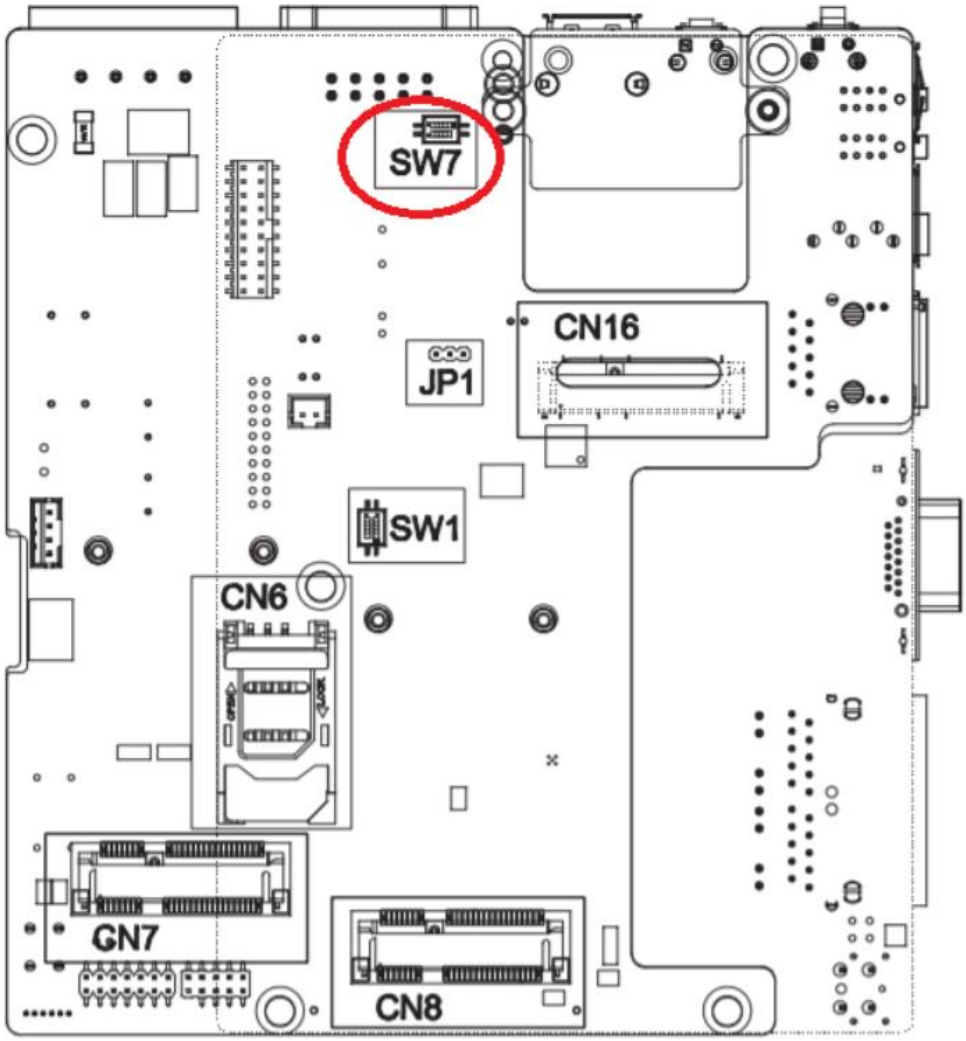
Customer would like to know how to test GPIO function in Ubuntu 18.04 and the correspondence between GPIO pins and driver.

■ **Brief Solution:**

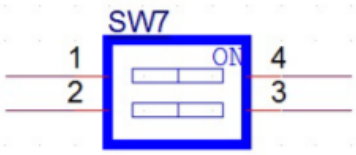
SW7 setting

On UNO-1372G-E, the DIO supports both Dry and Wet contact, user can choose the contact mode from SW7.

Before to perform the DIO test, please first check the SW7 setting, the default setting of SW7 is Dry contact.



SW7:



- Digital Input
  Input Channels: 3
  - Input Voltage (Wet Contact) Logic 0: 0~3 VDC (switch to 1 and 3)
    Logic 1: 10 ~ 30 VDC
  - Input Voltage (Dry Contact) Logic 0: Open (switch to 2 and 4)
    Logic 1: Shorted to GND
  - Input Current
    10 VDC @ 2.67 mA
    20 VDC @ 5.64 mA
    30 VDC @ 8.91 mA
- Digital output
  Channels:3
  - Output Voltage: 5 ~ 30 VDC
  - Output Capability Sink: 24 mA max./channel

Driver installation

advec driver version: V1.21
OS: ubuntu 18.04 x64
Follow the introductions in the README file in the driver folder to install advec driver. According to our experiences, to install advec driver will require first running “apt update”, installing “make” and installing “gcc” on ubuntu 18.04.

Get the advec driver and execute the following instructions and uncompress the package.
tar -zxvf advec_source_v2.10.tar.gz
cd advec_source_v2.10

Go to the driver directory
cd drivers

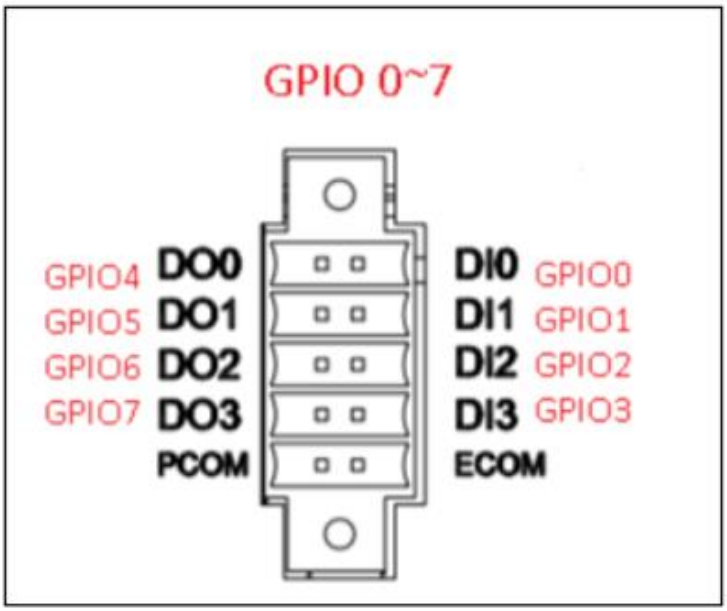
Install driver
make install

Examples

After uncompressed the advec_source_v2.10.tar.gz, there will a exmapel folder comes up and we will need to use examples to perform DIO test.

Open example folder and run following command to “make” examples.
#sudo make

The correspondence between GPIO pins and drivers is as below:

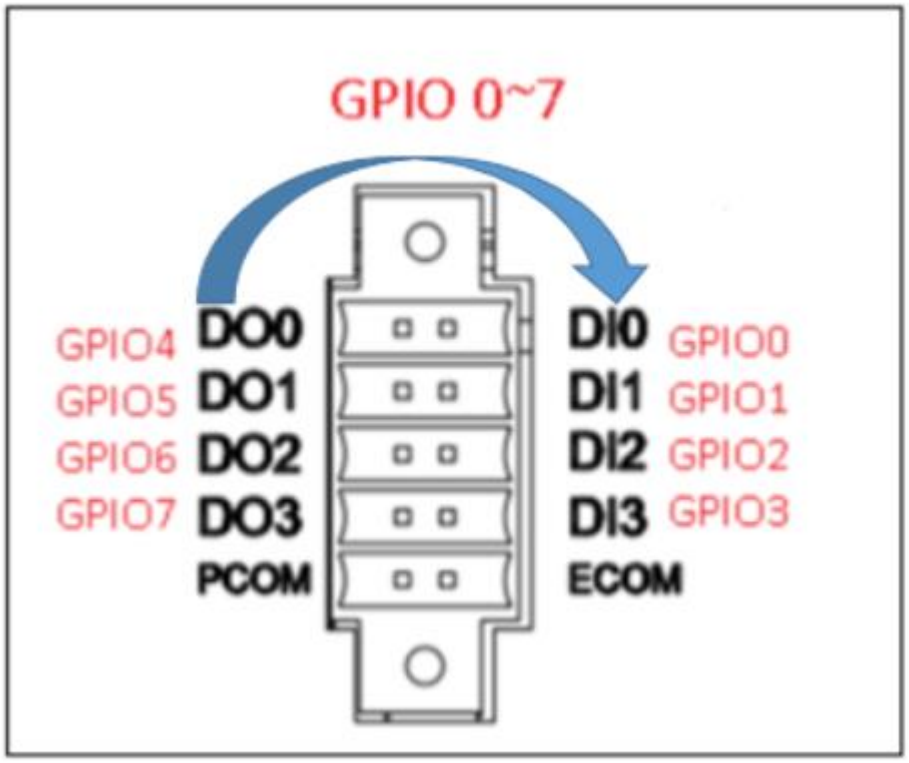


Note: The DIO function on UNO-1372G is fixed, user can’t change the DI to DO or DO to DI.

Dry contact test:

For dry contact function validation, you can just connect the DO to DI, then use DIO example to see the changes on DI.

For example, when DO 0(GPIO 4) and DI 0 (GPIO 0)is connected, if the GPIO 4 changes the high / low status, you can read the status changes on GPIO 0



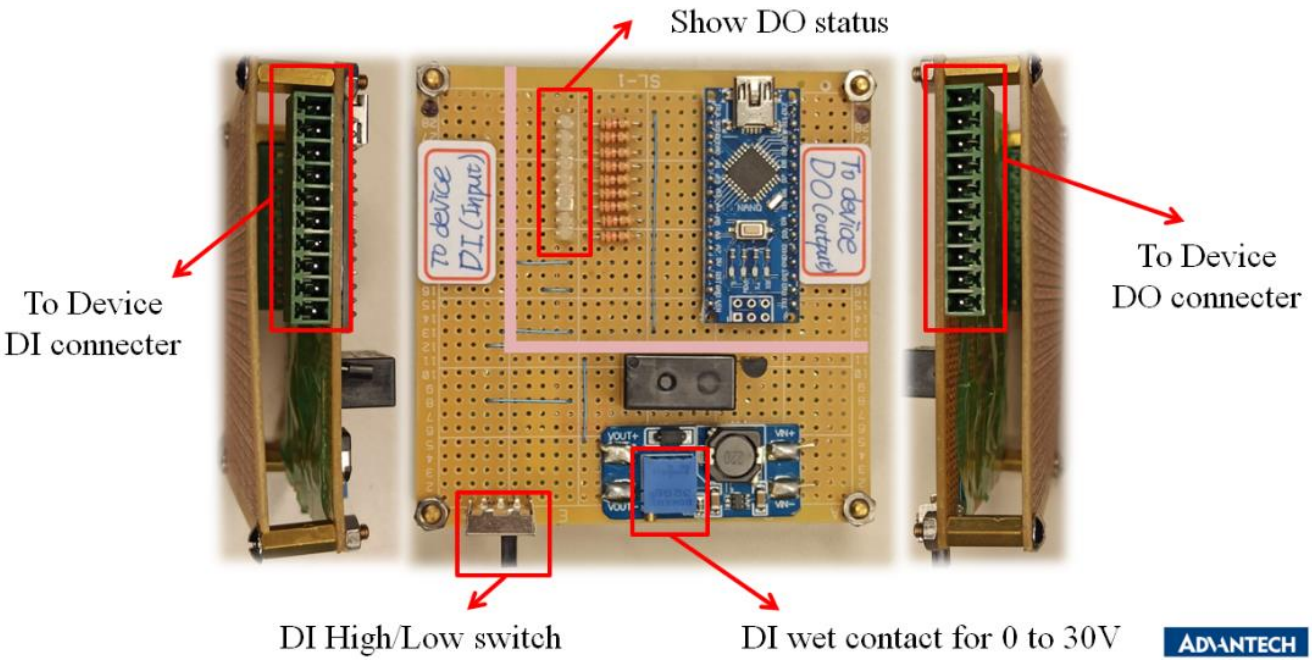
Wet contact test

According to DIO diagram, if the DIO setting is set to wet contact which means the voltage is PROVIDED and DEFINED by external device. If you want to test the function with wet contact, it requires connecting a external device and provide a power input within SPEC.
Moreover the GPIO ground on UNO-1372G-E is isolated from UNO ground. It should be connected to ECOM pin when measuring.

Here is our DIO demonstration:

DIO Test Tool: DIO test tool provides with 15V and has digital input / output function
UNO OS: Ubuntu 18.04
GPIO Driver: advec_V2.11
SW7: SW7 is set to 1,3

DIO Test Tool

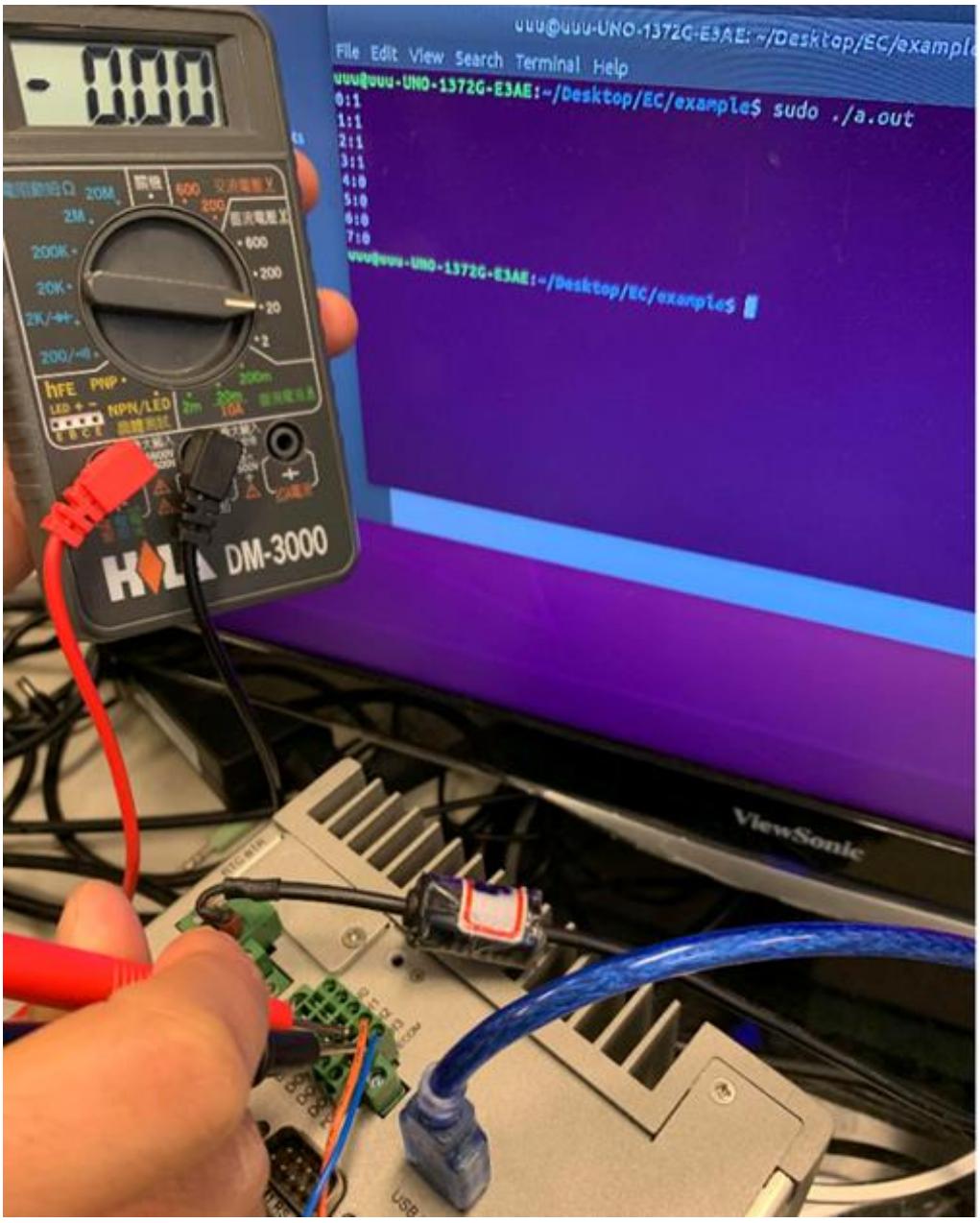


Wiring:

DIO Test Tool's output is connected to UNO's DI3,
DIO Test Tool's ground is connected to UNO's ECOM.

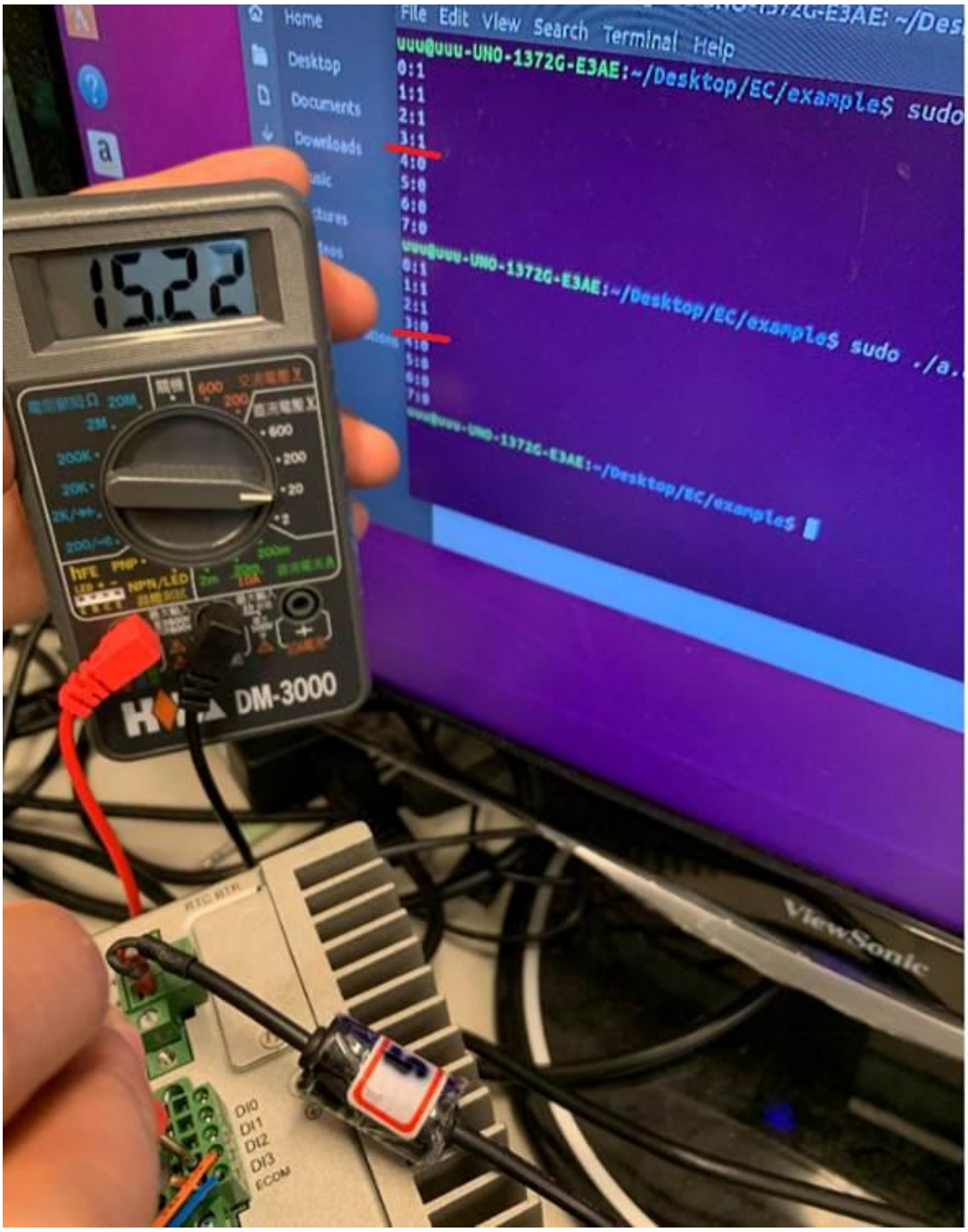
There is a high / low switch on our DIO Test Tool and the tool's original setting is low level. When we measure the DI3 and ECOM, we get 0V and the status showed on GPIO driver is 1 (GPIO 3), as figure 1

Figure 1



If we switch DIO Test Tool to high level, we can measure the 15V on DIO pin and also see the driver status (GPIO 3) changes, as figure 2

Figure 2



If you don’t have any devices or tools to test DIO function with wet contact, you can use the the same power source as UNO, but remember not to over the SPEC of DIO.

Here is our DIO demonstration:

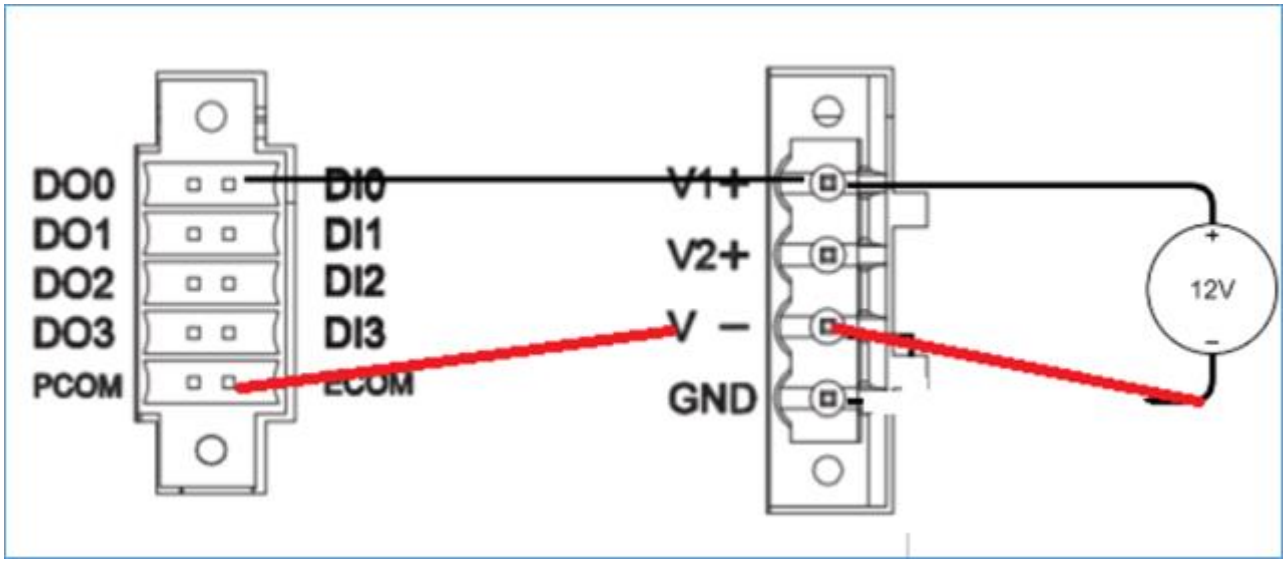
We use a desktop power supply to provide 12Vdc and perform the demonstration.

The configuration is as below:

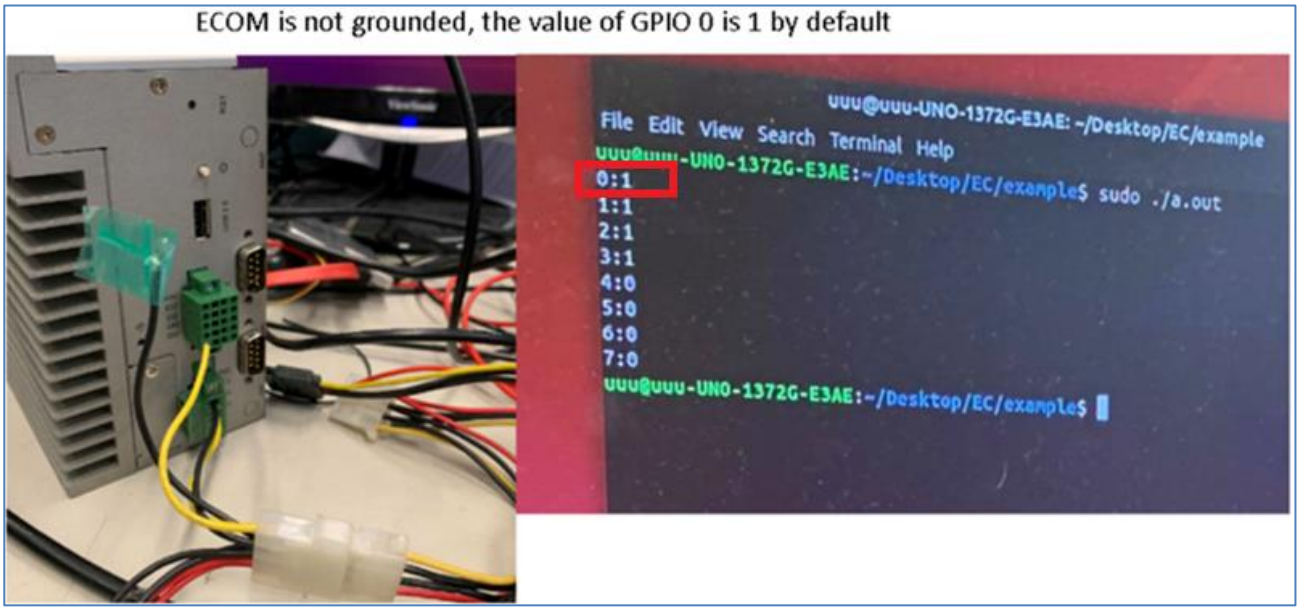
DI 0 is connected to UNO Power + .

ECOM is connected to UNO Power - .

Wet contact wiring is as below



Yellow cable is 12Vdc, black cable is ground



If ECOM is connected, the value of GPIO 0 changes from 0 to 1