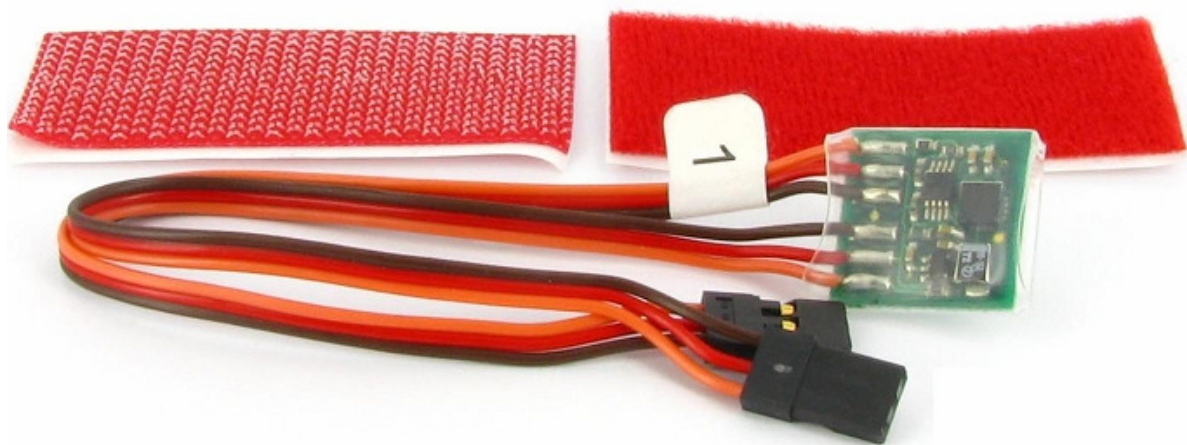




**Robot maker**  
For Innovative Leisure and for Education



## 2-Axis accelerometer

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## 2 Axis accelerometer

### Document management

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## 2 Axis accelerometer

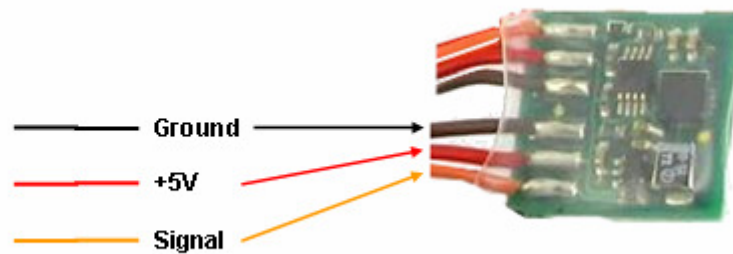
### 1 Introduction

The 2-axis accelerometer is a device that measures magnitude and direction of the acceleration: it can be used to detect the orientation of your robot.

#### ▪ *Features*

- 2 axis.
- 2 mg resolution at 60 MHz.
- Low power.
- Good zero g bias stability.
- Good sensitivity accuracy.
- X-axis and Y-axis aligned to within 0.1 degrees.

#### ▪ *Connector's schematics:*



## 2 Axis accelerometer

### 2 How to connect on DUAL-POB Hardware:

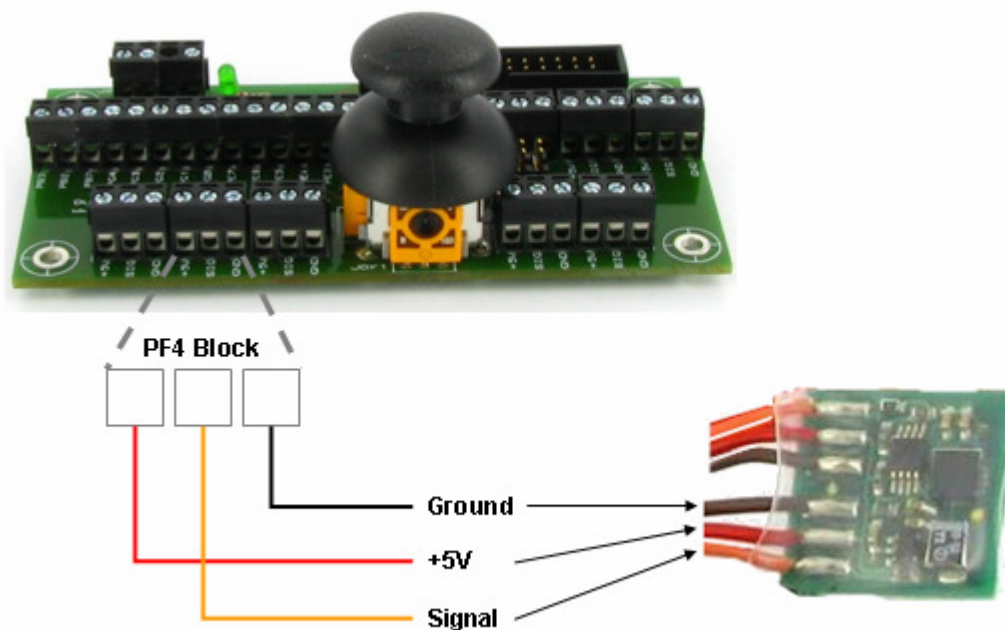
The signal of the accelerometer is an analog signal: you can plug it on the analog input of the DUAL-POB (analog pins are named PF0 to PF7).

One axis of the accelerometer has the following color wire:

- Ground → Brown wire.
- +5V → Red wire.
- Signal → Pink wire.

#### ▪ With the DUAL-IO block

- Cut the black connector.
- Remove the plastic wire extremity.
- Plug the wire into the DUAL-IO block like the next schematics (for example in the next schematics, the signal goes to the analog PF4 of the DUAL-POB):



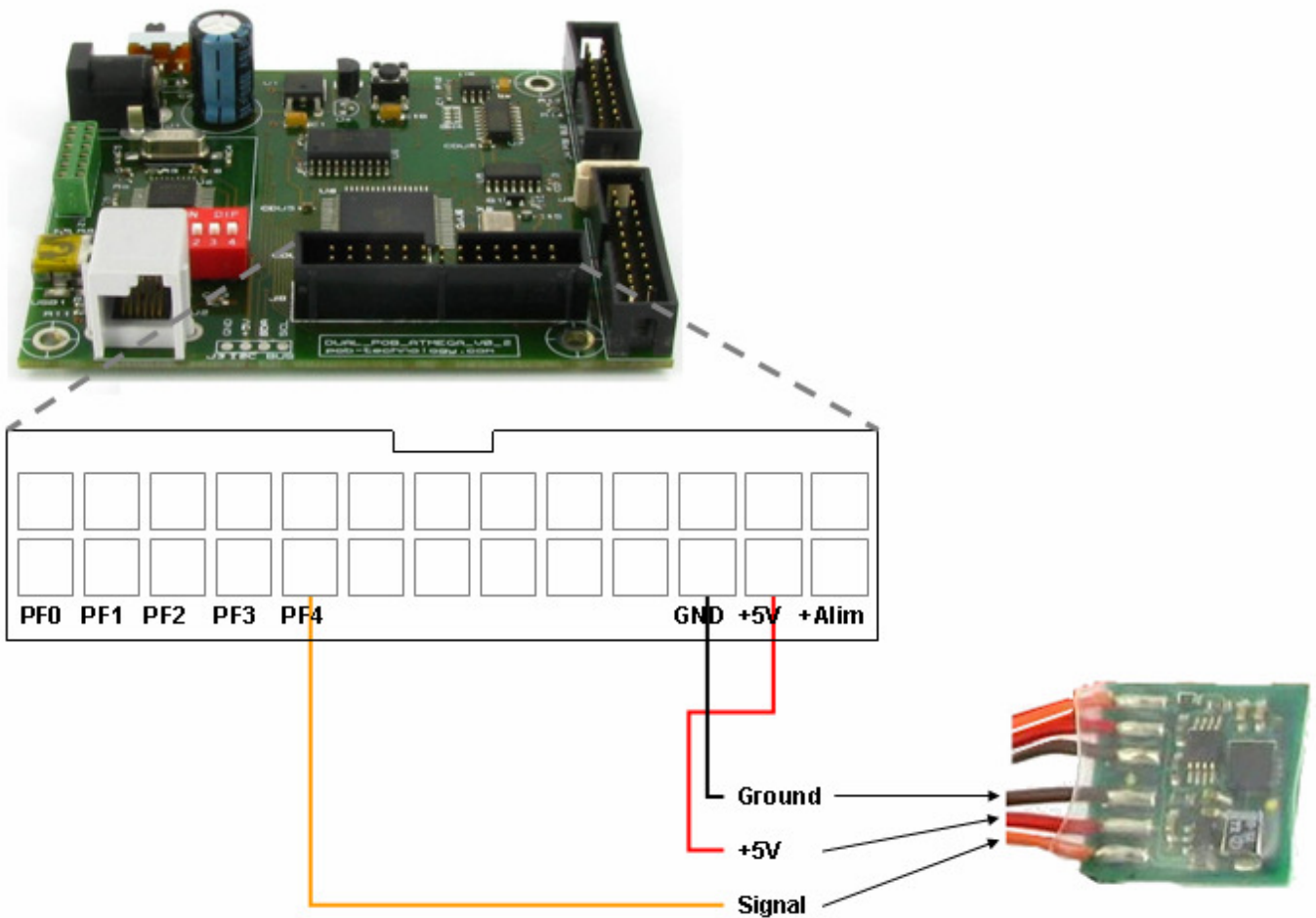
## 2 Axis accelerometer

- With the DUAL-POB

If you don't have the DUAL-IO, you can use the HE10 input/output connector of the DUAL-POB.

You have to solder the wire into the HE10 connector.

Connector's schematic:



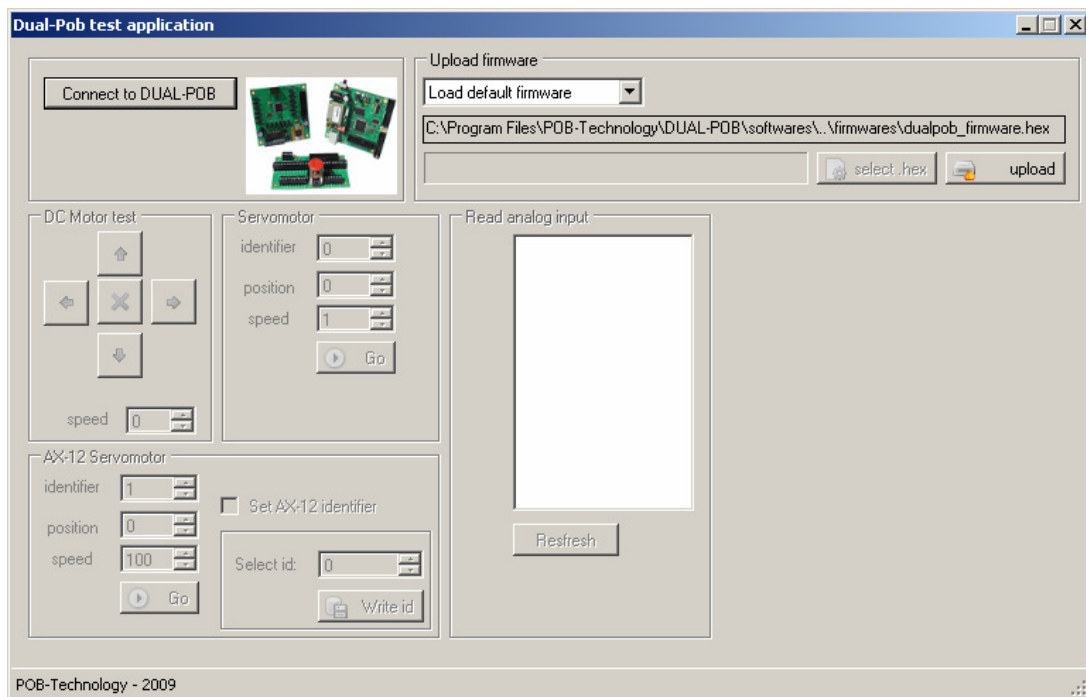
If you want to connect the analog signal to another analog pin, please refer to the Dual-POB documentations ("[dualpob\\_english.pdf](#)").

## 2 Axis accelerometer

### 3 Test your sensor

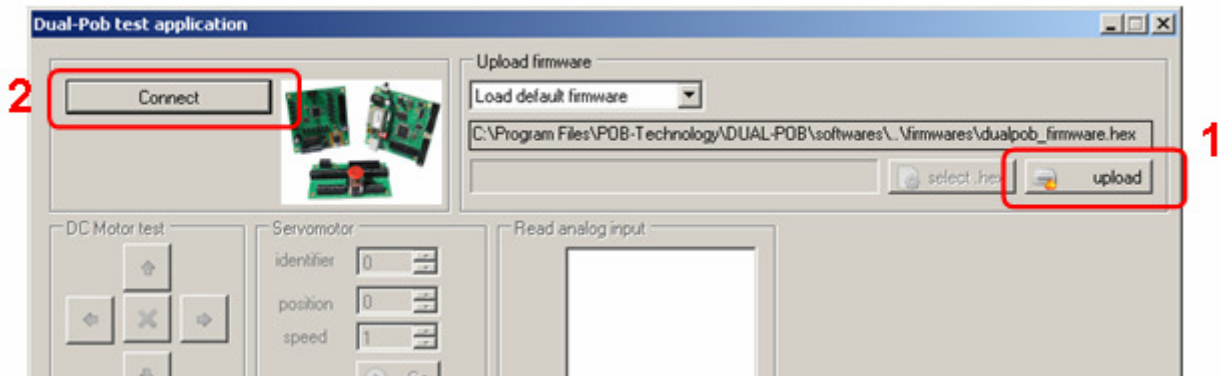
To test the sensor: On your computer, go to “Start → Programs → POB-Technology → DUAL-POB” and click on “Test application”.

- A window will appear like the next screen:



## 2 Axis accelerometer

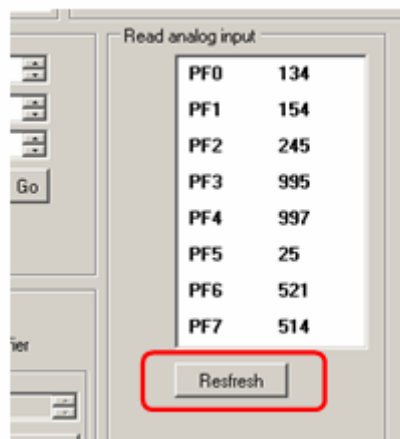
- Then, upload the default DUAL-POB firmware into the dual-pob (1) and click on connect (2) at the end:



### Remark:

Before using the DUAL-POB, please install the dual-pob software: You can find this software on the provided cdrom or on our website (in the section 'Dual-POB').

Once the firmware is correctly uploaded, you can click the refresh button to get the analog value:



Just move the accelerometer sensor and click on refresh to see the new value of the sensor.

## 2 Axis accelerometer

### 4 Source code example

```
#include <dual-pob.h>

#define X_AXIS    5    /**< accelerometer is on PF5 analog input */

int main(void)
{
    UInt8    portb;
    UInt8    led;
    UInt16   sensor;
    Int8    string[32];

    //----- init hardware:

    portb = IO_AS_OUTPUT << PIN_3 ;
    SetIOWay(portb, IO_AS_DEFAULT, IO_AS_DEFAULT, IO_AS_DEFAULT);

    InitUART0(19200);
    InitAnalog();
    Timer1Init(3036, TIMER1_256);

    led = 0;

    //----- main loop:
    while(1)
    {
        if( IsTimer1Overflow() == 1 )
        {
            //----- simple led blinking:
            if(led==0)
            {
                SetOutput(PORTB, PIN_3);
                led=1;
            }
            else
            {
                ClearOutput(PORTB, PIN_3);
                led=0;
            }

            //----- get sensor value
            sensor = GetAnalog(X_AXIS);
            sprintf(string, "%d\r\n", sensor);

            SendString(string);

        }
    }

    return 0;
}
```



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