PSL-iEMG2

Small Sized 2-Channel EMG Module with Isolation Power & Signal

[Overview]

PSL-iEMG2is a small 2-channel EMG module that outputs EMG and EMG Envelope signals.

DC 5V input power can be used the power of the Arduino board without any other power supply which is very convenient. Amplification is a 500 V/V. The notch filter can be adjusted to 50Hz or 60Hz by the notch filter selectable switch. The module outputs a high-quality EMG signal by applying the low noise and optimal filter design.

PSL-iEMG2 guarantees electrical safety through isolation power and signal during measuring. For the high quality signal input the premium lead cable with shield is provided, and the cable adopts a stereo jack to connect simply.

[Features]

- Analog EMG 2-channel amplifier module
  (Ch.1 EMG, Ch.2 EMG Envelope)
- DC 5V power input
- Isolation power and signal
- Current consumption 50mA or less
- Amplification 500V/V
- Selectable 50Hz or 60Hz by the notch filter switch
- Optimized HPF and LPF design for EMG
- Output signal 0~3.3V(center 1.65V)
- Size 56mm X 35mm
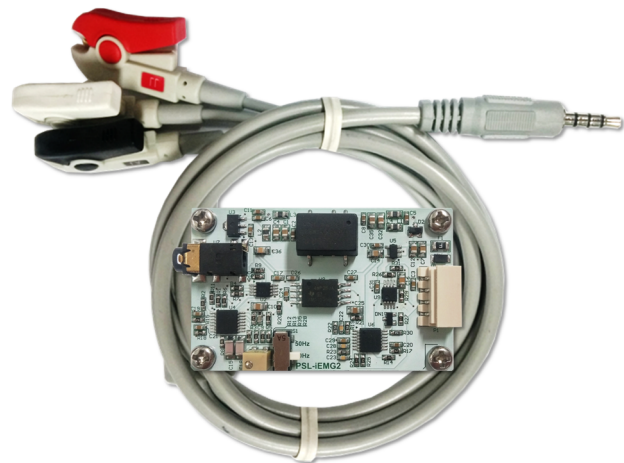- Lead cable with shield and stereo jack
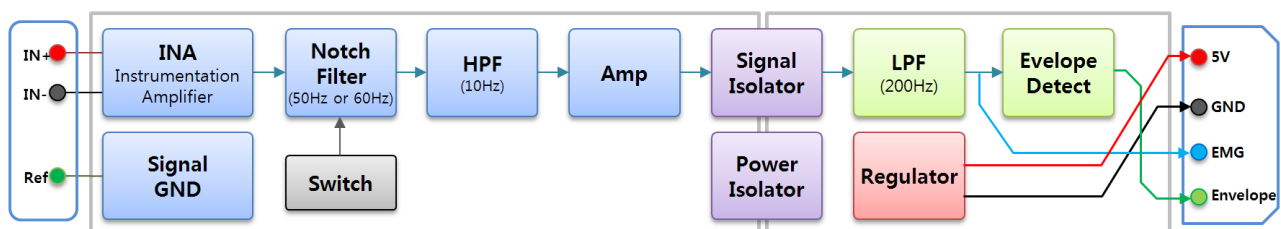

Figure 1. PSL-iEMG2

[Block Diagram]

Figure 2. Block diagram of PSL-iEMG2

[Specification]

Item		PSL-iEMG2
Output signal		EMG, EMG envelope (2 channel)
Output signal range		0~3.3V(Center 1.65V)
Amplification		500V/V(≤±2%)
CMRR		60dB
Filter Set	Notch	Adjustable 50Hz or 60Hz
	HPF	10Hz
	LPF	200Hz

Item	PSL-iEMG2
Input power	DC 4.5V~5.5V
Power consumption	≤ 50mA
Isolation	Power & Signal
Insulation voltage	1kV DC(5sec.)
Size	56mmX35mm (PCB)
Lead cable	3 wire shielded cable (1,100㎜, stereo jack)

[Package Contents]

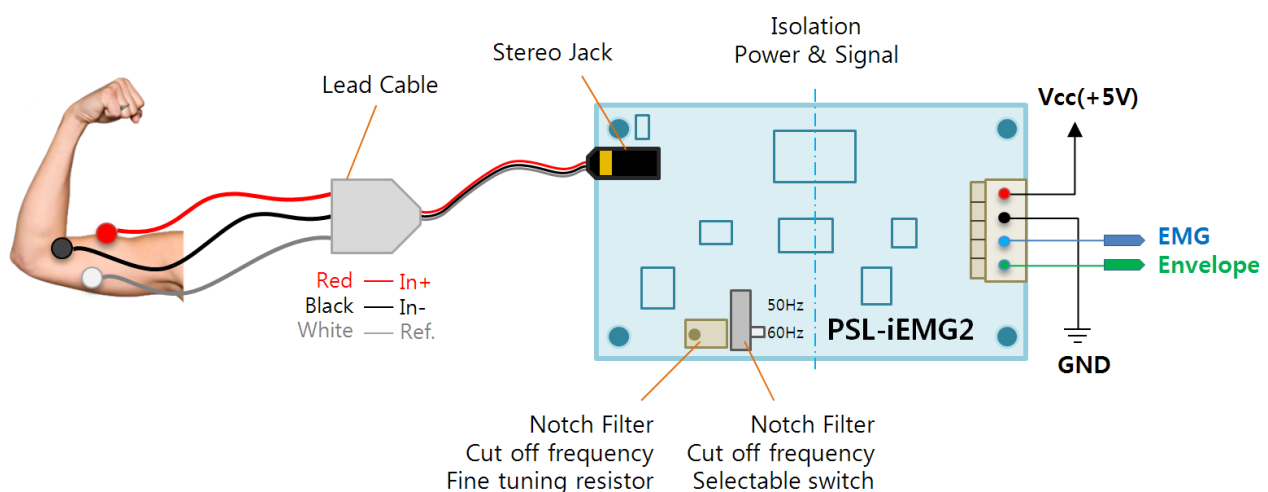| Item	Quantity	Note
PSL-iEMG2 body	1EA	PSL-iECG2 body
Lead cable	1EA	3 wire shielded cable (1,100㎜, stereo jack)
Ouput cable	1EA	Cable length 300mm(molex ― pin type)
Electrode	6EA	Disposable Ag/AgCl electrode
Manual	1EA	-

[General Information]

Figure 3. General information of PSL-iEMG2

[Warning] Please push to the end when connecting the cable to the stereo jack of the module.
If the cable has not been properly connected to the module, it may cause a malfunction.

[Example of Measurement]

- Measurement device : PSL-DAQ
- EMG(Body) → **PSL-iEMG2** → PSL-DAQ(data acquisition) ▶ **EMG, EMG envelope**
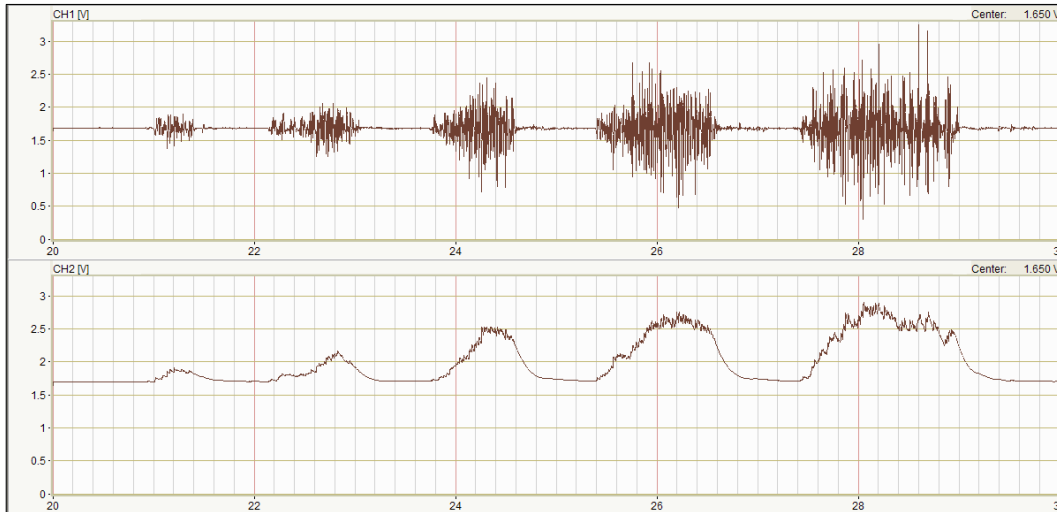

Figure 4. EMG & EMG envelope output signals

※ PSL-DAQ   : PhysioLab product, small 2-channel DAQ with 16bit ADC.

[Example of Application] Connection to PSL-DAQ

- PSL-DAQ is 2-channel analog data acquisition device and released with PSL-iModule V2 series.
- PSL-DAQ can supply power to the PSL-iModule V2 series and receive signals from the module at the same time. Therefore it can easily connect to the module using one cable(with a 4-pin configurarion)
- The PCB size of PSL-DAQ is the same as the PSL-iModule V2's. If they are arranged in the up and down, they can have minimal volume and be used as a digital bio-signal module.
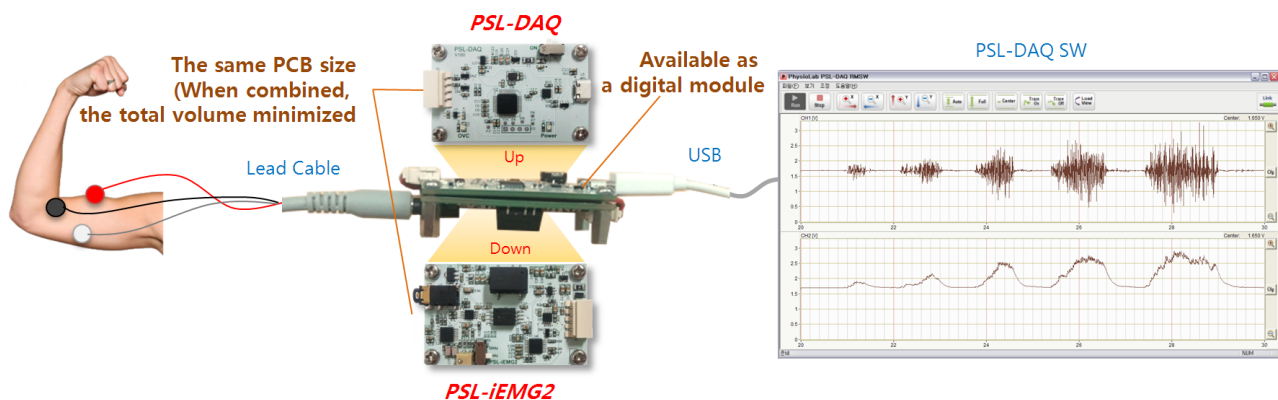

Figure 5. Configuration example of PSL-iEMG2 and PSL-DAQ placed up-down.
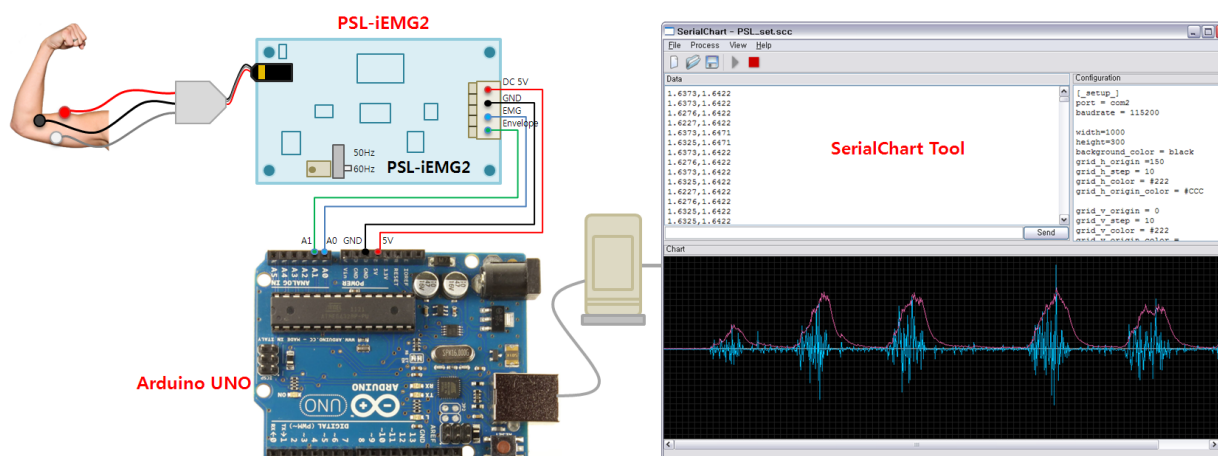
[Example of Application] Connection to Arduino

Figure 6. Configuration example, connect the Arduino board and PSL-iEMG2

Arduino Source - using timer interrupt	SerialChart Configuration
| ```
#include <MsTimer2.h>

int analogPin0 = 0;
int analogPin1 = 1;

void setup() {

  Serial.begin(115200);
  MsTimer2::set(10, AnalogAD); // 10ms period
  MsTimer2::start();
}

void AnalogAD() {
  int reading0 = analogRead(analogPin0);
  float Voltage0 = float(reading0)*5/1023;
  Serial.print(Voltage0,4);
  Serial.print(",");
  int reading1 = analogRead(analogPin1);
  float Voltage1 = float(reading1)*5/1023;
  Serial.println(Voltage1,4);
}

void loop() {}
``` | ```
[_setup_]
port = com2
baudrate = 115200

width = 1000
height = 300
background_color = black
grid_h_origin = 0
grid_h_step = 10
grid_h_color = #222
grid_h_origin_color = #ccc

grid_v_orgin = 0
grid_v_step = 10
grid_v_color = #222
grid_v_origin_color = transparent

[_default_]
min = 0
max = 3.3

[Field1]
color = deepskyblue

[Field2]
color = hotpink
``` |
| **MsTimer2 :** http://playground.arduino.cc/Main/MsTimer2 | **SerialChart :** https://code.google.com/p/serialchart/ |

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