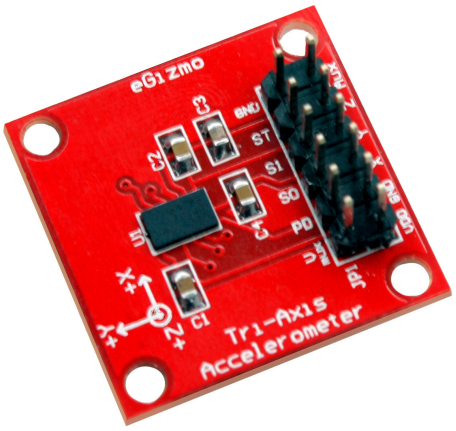
Tri-Axis Accelerometer

Technical Manual Rev 1r0



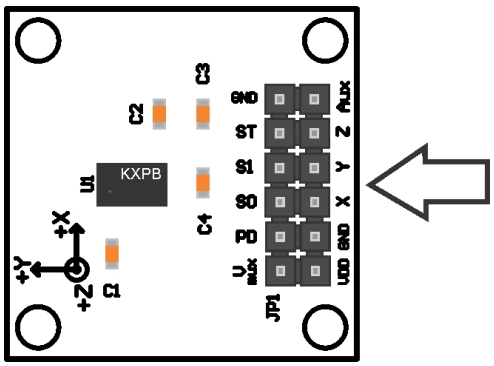


Figure 1. Parts placements Illustration

FEATURES & SPECIFICATIONS

The e-gizmo Tri-Axis Accelerometer low cost break-out board based on KXPB5 . 3 x-y-z analog output with full scale range of +/-2g.
Power Supply Inputs: 1.8V to 3.6 V

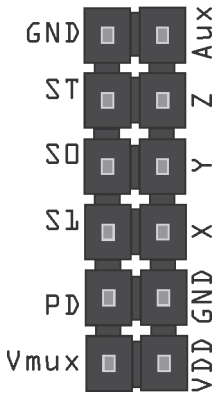


Figure 2. PIN I.D Assignments

Table 1. PIN I.D and Descriptions

Pin I.D.	Pin Description
GND	Ground
ST	Self Test
S1	MUX Selector 1
S0	MUX Selector 0
PD	Power Shutdown
Vmux	Multiplexed analog output
VDD	1.8V-3.6V
GND	Ground
X	X channel analog output
Y	Y channel analog output
Z	Z channel analog output
Aux	Auxillary input for multiplexer

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FEATURES & SPECIFICATIONS

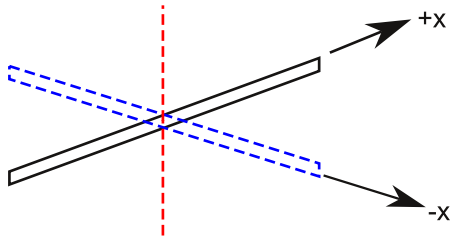

Figure 3. X-axis

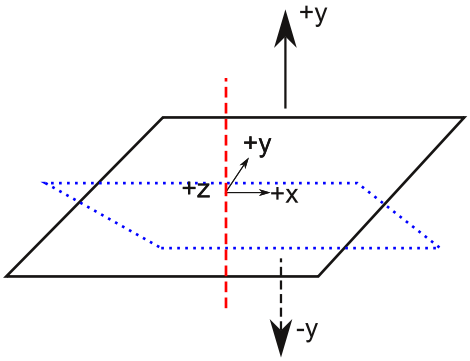

Figure 4. Y-axis

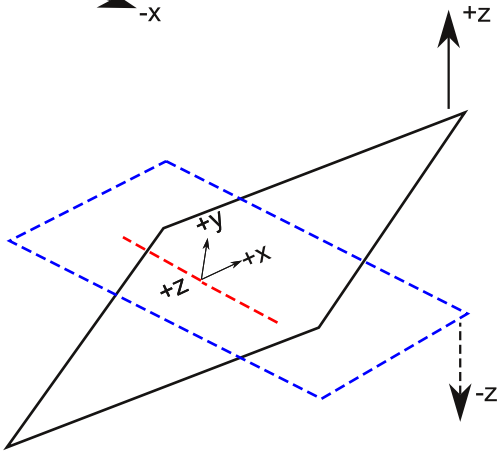

Figure 5. Z-axis

Functional Block Diagram

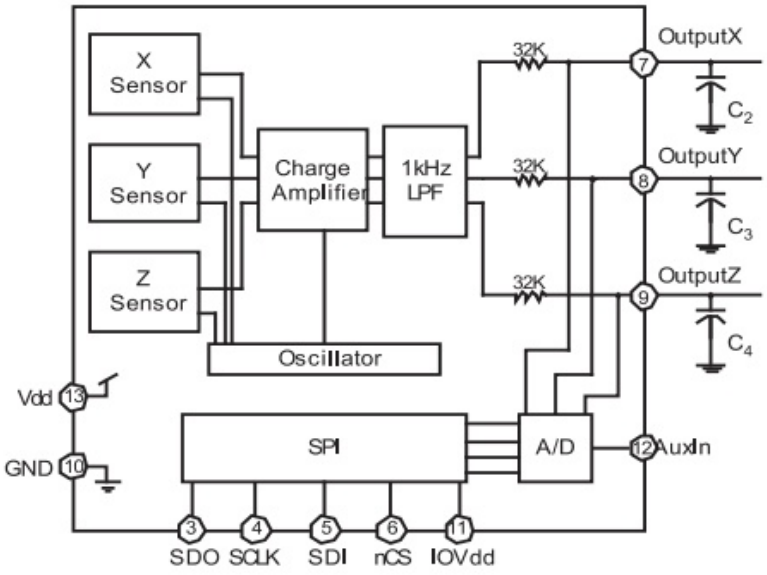

Figure 6. KPB5 Block Diagram.

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PCB BOARD PRESENTATION

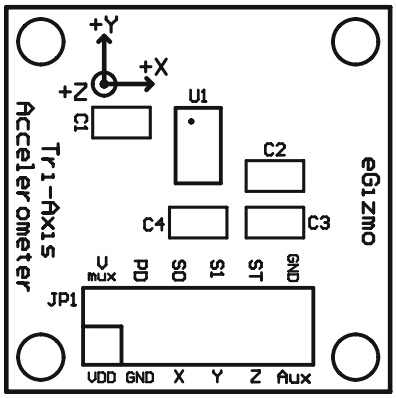

Figure 7. Tri-Axis Accelerometer
(SilkScreen Layout)

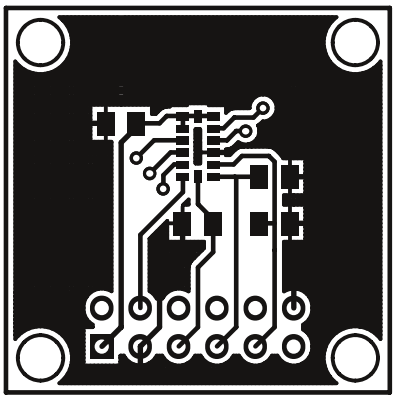

Figure 8. Tri-Axis Accelerometer
(Top PCB Layout)

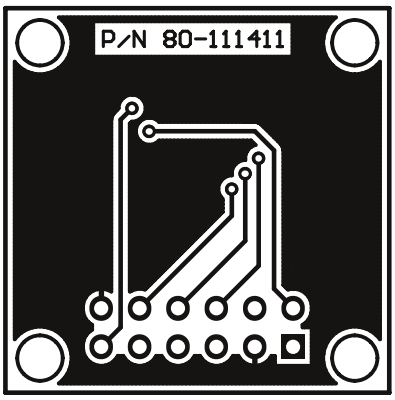

Figure 9. Tri-Axis Accelerometer
(Buttom PCB Layout)

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SAMPLE APPLICATIONS

Wiring connections:

Tri-Axis		MCU
VDD	-	+3.3V
GND	-	GND
A0	-	Z
A1	-	Y
A2	-	X
Aux	-	GND
GND	-	GND
ST	-	GND
S0	-	GND
S1	-	GND
PD	-	GND
Vmux	-	NC

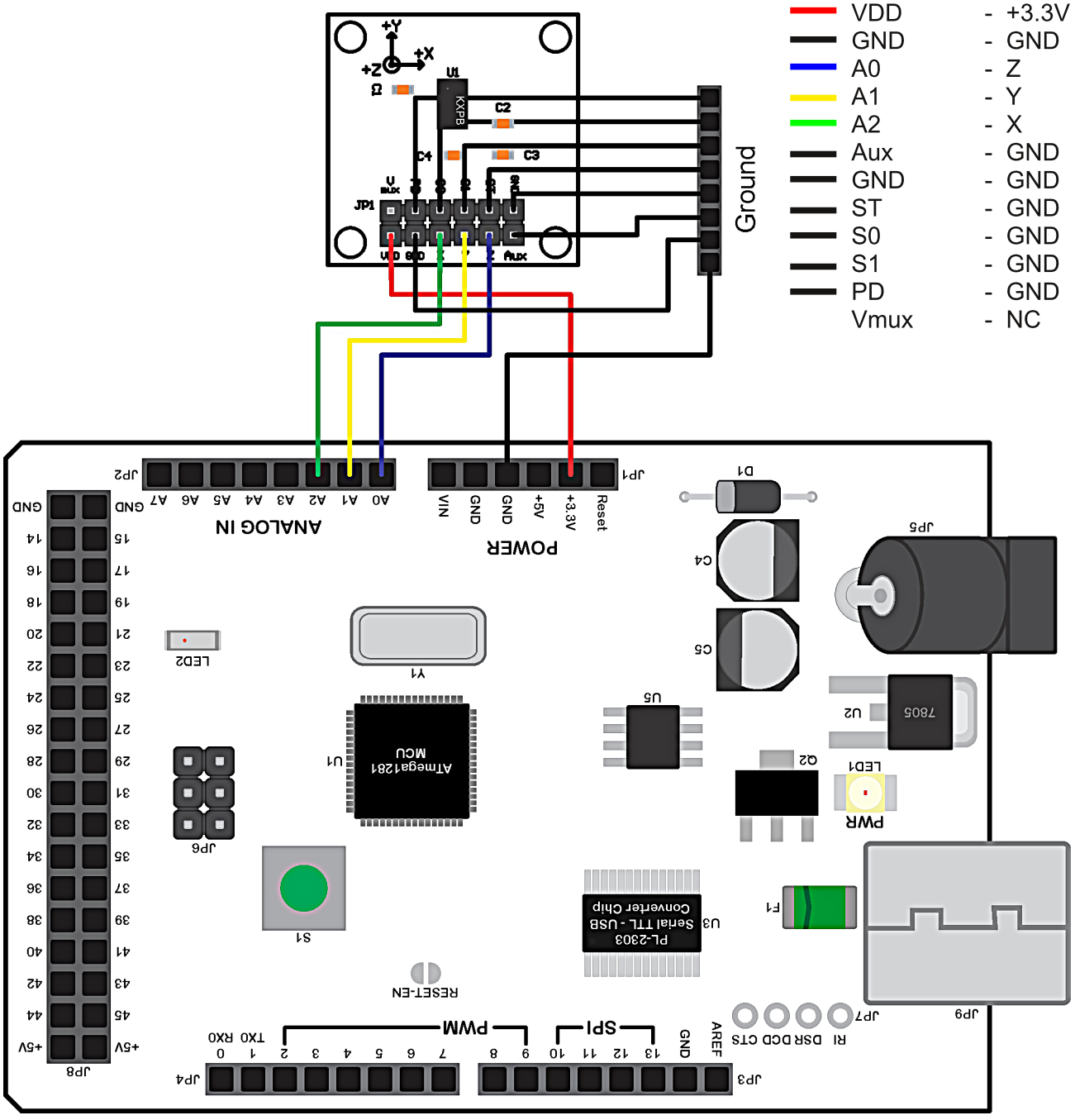

Figure 10. Tri-Axis Accelerometer
Schematic Diagram

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SAMPLE CODES

```
/*Tri-Axis Accelerometer Sample Program.
code by:
e-gizmo
Mechatronix Central
September 20, 2013
*/
//describe the pins.
int x = A2; //X
int y = A1; //Y
int z = A0; //Z

void setup()
{
  // initialize the serial communications:
  Serial.begin(9600);

}
void loop()
{

  Serial.print("x="); //print x=
  int out = analogRead(x); //read the input on Analog pin (A2);
 float voltage = out *(3.3 /1023.0); //Convert the analog reading( which goes from 0 to 1023)
                                                    to a voltage (0-5V);
  float xorigin = (voltage - 1.16);
  Serial.print(xorigin); //print out the voltage you read.

  Serial.print("\t");

  Serial.print("y=");
  int out1 = analogRead(y);
  float voltage1 = out1 *(3.3 /1023.0);
  float yorigin = (voltage1 - 1.15);
  Serial.print(yorigin);

  Serial.print("\t");

  Serial.print("z=");
  int out2 = analogRead(z);
  float voltage2 = out2  *(3.3 /1023.0);
  float zorigin = (1.64 - voltage2);
  Serial.println(zorigin);


  delay(50);
}
```

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