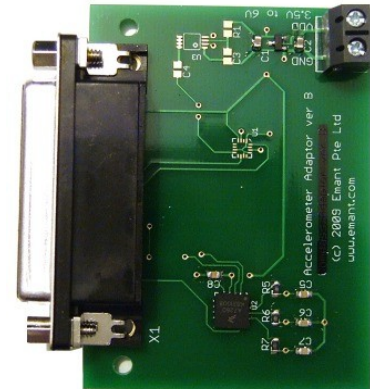


ACCELEROMETER APPLICATION ADAPTOR FOR EMANT380

The Accelerometer Application Adaptor connects the Freescale **MMA7260QT**, $\pm 1.5g - 6g$ Three Axis Low-g Micromachined Accelerometer to the **EMANT380** Bluetooth DAQ module.

FEATURES

- Selectable Sensitivity (1.5g/2g/4g/6g)
- High Sensitivity (800 mV/g @ 1.5g)
- Typical Applications
 - Pedometer: Motion Sensing
 - Inclinometer
 - Navigation: Pitch and Roll Demonstration
 - Gaming: Tilt and Motion Sensing



MMA7260QT

Please see **MMA7260QT** specifications for full information.

Typical at 25 °C unless otherwise noted. VDD=3.3V

Parameter	Condition	Specification	Unit
Acceleration Range, X-Axis, Y-Axis, Z-Axis¹			
D1 & D2: 00		± 1.5	g
D1 & D2: 10		± 2.0	g
D1 & D2: 01		± 4.0	g
D1 & D2: 11		± 4.0	g

Note 1: D0 = 1. Device is enabled

Output Signal			
Zero-g	VOFF Min, Typical, Max	1.485 1.65 1.815	V
Sensitivity			
1.5g		800	mV/g
2g		600	mV/g
4g		300	mV/g
6g		200	mV/g

Connect to the EMANT380 Bluetooth DAQ

1. Connect the adaptor to the EMANT380 Bluetooth DAQ module
2. Connect power supply (3.5V to 6V Max)



Programming Tips (Python)

```
m = Emant.Emant300()
m.Open("COM6")
m.ConfigAnalog(2.5, Emant.Emant300.Bipolar, 100)
m.WriteDigitalPort(1)
```

1. Open the EMANT380 with the outgoing COM Port
2. Configure the Analog to Bipolar Input with Input Range to 2.5V
3. Set DO to High to enable the accelerometer chip. Acceleration Range set to +/- 1.5g – D1,D2 = low

```
volt, binval = m.ReadAnalog(Emant.Emant300.AIN0, Emant.Emant300.COM)
x = 2.5 + volt
```

4. Read the X axis voltage and convert to correct value by adding 2.5V. COM is connected to 2.5V reference.

```
gx = (x - 1.65) / 0.8
gy = (y - 1.65) / 0.8
gz = (z - 1.65) / 0.8
emant_pitch = math.atan2(gy, gz) * 180 / 3.14
emant_roll = math.atan2(gx, gz) * 180 / 3.14
```

5. Calculate g from voltages
6. Calculate pitch and roll from g. See **MMA7260QT** specifications and application notes for formulae.

Schematic

