

**The code for max value:**

float getVoltage(int counterADS) {

float result;

int16\_t rawReading = 0;

int16\_t maxRaw = 0;

float voltageReading;

float maxVoltage = 0;

float sum = 0;

int counter = 0;

const float scaleFactor = 250 / 4 ;

long timing = millis();

ADS\_Device[counterADS]->setGain(1);

ADS\_Device[counterADS]->setDataRate(0);

float f = ADS\_Device[counterADS]->toVoltage(1);

while (millis() - timing <= 1000) {

rawReading = ADS\_Device[counterADS]->readADC(2);

voltageReading = rawReading \* f;

// Serial.println("voltageReading = " + String(voltageReading, 6));

if (voltageReading >= sum) {

sum = voltageReading;

}

// sum += voltageReading;

// counter = counter + 1;

}

Serial.println("maxRaw = " + String(sum, 6));

//result = (sum / counter) \* scaleFactor \* 1.111;

result = sum \* scaleFactor ;

Serial.println("Voltage = " + String(result, 3));

return result;

}

**The code for avg value:**

/\*

float result;

int16\_t rawReading = 0;

int16\_t maxRaw = 0;

float voltageReading;

float maxVoltage = 0;

float sum = 0;

int counter = 0;

const float scaleFactor = 250 / 2 ;

long timing = millis();

ADS\_Device[counterADS]->setGain(2);

ADS\_Device[counterADS]->setDataRate(0);

float f = ADS\_Device[counterADS]->toVoltage(1);

while (millis() - timing <= 1000) {

rawReading = ADS\_Device[counterADS]->readADC(2);

voltageReading = rawReading \* f;

Serial.println("voltageReading = " + String(voltageReading, 6));

sum += voltageReading;

counter = counter + 1;

}

Serial.println("maxRaw = " + String(sqrt(sum / counter), 6));

result = (sum / counter) \* scaleFactor \*1.111;

Serial.println("Voltage = " + String(result, 3));

return result;

\*/

**Gain settings:**

// ads.setGain(GAIN\_TWOTHIRDS); // 2/3x gain +/- 6.144V 1 bit = 3mV 0.1875mV (default)

// ads.setGain(GAIN\_ONE); // 1x gain +/- 4.096V 1 bit = 2mV 0.125mV

// ads.setGain(GAIN\_TWO); // 2x gain +/- 2.048V 1 bit = 1mV 0.0625mV

// ads.setGain(GAIN\_FOUR); // 4x gain +/- 1.024V 1 bit = 0.5mV 0.03125mV

// ads.setGain(GAIN\_EIGHT); // 8x gain +/- 0.512V 1 bit = 0.25mV 0.015625mV

// ads.setGain(GAIN\_SIXTEEN); // 16x gain +/- 0.256V 1 bit = 0.125mV 0.0078125mV

**Excel values and the chart for avg measurement:**

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| voltageReading = 1.335041 | 1.335041 |
| voltageReading = 1.335041 | 1.335041 |
| voltageReading = 1.335041 | 1.335041 |
| voltageReading = 1.335041 | 1.335041 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.361854 | 1.361854 |
| voltageReading = 1.390105 | 1.390105 |
| voltageReading = 1.390105 | 1.390105 |
| voltageReading = 1.390105 | 1.390105 |
| voltageReading = 1.390105 | 1.390105 |
| voltageReading = 1.390105 | 1.390105 |
| voltageReading = 1.334291 | 1.334291 |
| voltageReading = 1.334291 | 1.334291 |
| voltageReading = 1.334291 | 1.334291 |
| voltageReading = 1.334291 | 1.334291 |
| voltageReading = 1.363479 | 1.363479 |
| voltageReading = 1.363479 | 1.363479 |
| voltageReading = 1.363479 | 1.363479 |
| voltageReading = 1.363479 | 1.363479 |
| voltageReading = 1.390543 | 1.390543 |
| voltageReading = 1.390543 | 1.390543 |
| voltageReading = 1.390543 | 1.390543 |
| voltageReading = 1.390543 | 1.390543 |
| voltageReading = 1.390543 | 1.390543 |
| voltageReading = 1.333978 | 1.333978 |
| voltageReading = 1.333978 | 1.333978 |
| voltageReading = 1.333978 | 1.333978 |
| voltageReading = 1.333978 | 1.333978 |
| voltageReading = 1.364542 | 1.364542 |
| voltageReading = 1.364542 | 1.364542 |
| voltageReading = 1.364542 | 1.364542 |
| voltageReading = 1.364542 | 1.364542 |
| voltageReading = 1.364542 | 1.364542 |
| voltageReading = 1.390855 | 1.390855 |
| voltageReading = 1.390855 | 1.390855 |
| voltageReading = 1.390855 | 1.390855 |