Prelab02

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Q.1.:

1 gauss (G) = E-04 tesla (7) = E-01 mT

from Datasheet: sensitivity is 5 mV/G

5 mV/G = 5 mV / E-01 mT = 50 mV/mT = 50’000 V/mT

Quiescent Voltage output (QVO): 46351651665 Volts

Min	Type	Max	Unit
1,635	1,65	1,665	Volts

nominal supply voltage: 3,3V (from data sheet 3,3V Supply operation)

Q.2.:

Arduino DUE / Atmel SAMBA microcontroller has a maximum resolution of 12-bits

Q.3.:

```
// Lab 02 - Analog Signal Acquisition
// Sample the analog output of the hall sensor sensor
// and print the value to the serial port


void setup() {
  // setup the serial connection
  Serial.begin(115200);
  // the default resolution of the ADC is set to 10 bits (maximum is 12 bits)
  analogReadResolution(12);
  pinMode(A3, INPUT);

}

void loop() {


  // initialize your parameters
  float input;
  float voltage;

  // check if the serial port is available and if something is received from the
serial port
  if(Serial.available() && (Serial.read()==114)) // r stands for read random
  {

    // Read the the hall sensor voltage
    input = analogRead(A3);     //Reads the analog value on pin A3 into input


    // Print the hall sensor voltage and the digital sampled value to the serial
port
    Serial.print("Digital value: ");
    Serial.println(input);

    voltage = 3.3*input/4095; // 4095 = 2^(12)-1 is maximum that can be
represented with a 12 bit word

    Serial.print("Analog value: ");
    Serial.println(voltage);

  }
delay(20);
}
```