Soil PH and Temperature Sensor

The following is the Arduino code for the sensor and it has been tested

```
#include <SoftwareSerial.h>

#define RO 5

#define DI 4

//#define RE 6

//#define DE 7

const uint32_t TIMEOUT = 800UL;

//const byte get_ID    [] = {0xFE, 0x03, 0x02, 0x00, 0x00, 0x01, 0x91, 0xBD};

const byte pH_cmd    [] = {0x01, 0x03, 0x00, 0x00, 0x00, 0x01, 0x84, 0x0A};

const byte temp_cmd  [] = {0x01, 0x03, 0x00, 0x02, 0x00, 0x01, 0x25, 0xCA};

uint16_t getData (const byte* cmd, byte length);
```

```
void printHexByte (byte b);

byte values[7] = {0};

SoftwareSerial mod(RO, DI); // Rx pin, Tx pin

void setup() {

  Serial.begin(9600);

   mod.begin(9600);

  //pinMode(RE, OUTPUT);

  //pinMode(DE, OUTPUT);

  delay(500);

}

void loop() {

  float val1=0.0, val2=0.0;

  Serial.print("Soil pH: ");

  val1 = getData(pH_cmd, sizeof(pH_cmd) );

  Serial.print(val1/100);

  Serial.println();

  delay(1000);
```

```
  Serial.print("Temperature: ");
  val2 = getData(temp_cmd, sizeof(temp_cmd) );
  Serial.print(val2/10);
  Serial.println(" *C");
  delay(1000);
  delay(5000);
}
uint16_t getData( const byte* cmd, byte length) {
  uint32_t startTime = 0;
  uint8_t  byteCount = 0;
  uint16_t val_out = 0;
  //digitalWrite(DE, HIGH);
  //digitalWrite(RE, HIGH);
  delay(10);
  mod.write(cmd, length);
  mod.flush();
```

```
  //digitalWrite(DE, LOW);
  //digitalWrite(RE, LOW);
  startTime = millis();
  while ( millis() - startTime <= TIMEOUT ) {
       if (mod.available() && byteCount < sizeof(values) ) {
     values[byteCount++] = mod.read();
     //printHexByte(values[byteCount - 1]);
    }
  }
  //Serial.println();
  //TODO: you have to cast from values array the selected value to print it out
  // and return in val_out
  val_out = (uint16_t)((values[3]&0x00ff)<<8 | (values[4]&0xff));
  return val_out;
}
```

```
void printHexByte(byte b)

{

  Serial.print((b >> 4) & 0xF, HEX);

  Serial.print(b & 0xF, HEX);

  Serial.print(' ');

}
```