Introduct

The Grove - CO2 Sensor module is infrared CO2 sensor high sensitivity and high resolution. Infrared CO2 sensor MH-Z16 Is a general-purpose, small sensors, the use of non-dispersive infrared (NDIR) Present in the principle of the air CO2 Detect, with good selectivity, oxygen- dependent, long life, built-in temperature sensor, temperature compensation, with UART output, easy to use. It can be widely used in HVAC and indoor air quality monitoring, industrial process monitoring and security, agriculture and livestock production process monitoring.

Specification

- Measuring the range of 0-2000 parts per million (PPM)
- Resolution of 1 PPM 0-2000 parts per million (PPM)
- Accuracy of 200 PPM
- A Warm - up time 3 minutes
- Response Time <90s
- Operating temperature 0 to 50℃
- Operating Humidity 0% ~ 90% RH
- Storage temperature - 20-60℃
- Operating Voltage4.5 V to 6 V DC
- The Current maximum Current of less than 100 ma, the average Current of less than 50 ma
- Output mode UART

Demonstration

Connect the module with Grove Shield using like following picture and use the program below to gain the voltage. Please note that the best preheat time of the sensor is about 180s. For the detailed information about the sensor, please refer to the datasheet.

```
#include <SoftwareSerial.h>


const int pinRx = 8;
const int pinTx = 7;


SoftwareSerial sensor(pinTx,pinRx);


unsigned char flg_get = 0;                    // if get sensor data


const unsigned char cmd_get_sensor[] = {
0xff, 0x01, 0x86, 0x00, 0x00, 0x00, 0x00, 0x00, 0x79};


bool sendCmdGetDta(int *gas_strength, int *temperature)
{
    for(int i=0; i<sizeof(cmd_get_sensor); i++)
    {
        sensor.write(cmd_get_sensor[i]);
    }

    long cnt_timeout = 0;
    while(!sensor.available())                    // wait for data
    {
        delay(1);
        cnt_timeout++;

        if(cnt_timeout>1000)return 0;          // time out
    }

    int len = 0;
    unsigned char dta[20];

    while(sensor.available())
    {
        dta[len++] = sensor.read();
    }

    if((9 == len) && (0xff == dta[0]) && (0x86 == dta[1]))        // data ok
    {
        *gas_strength = 256*dta[2]+dta[3];
        *temperature = dta[4] - 40;
```

```
            return 1;
        }

        return 0;

}

void setup()
{
        Serial.begin(115200);
        sensor.begin(9600);
}


void loop()
{

//              Serial.println("get a 'g', begin to read from sensor!");
                Serial.println("******************************************************");
                Serial.println();
                flg_get = 0;
                int gas, temp;

                if(sendCmdGetDta(&gas, &temp))                  // get data ok
                {
//                      Serial.println("get data ok: ");
                        Serial.print("gas_strength = ");
                        Serial.println(gas);
//                      Serial.print("\ttemperature = ");
//                      Serial.println(temp);
                }
                else
                {
                        Serial.println("get data error");
                }


        delay(1000);
}



void serialEvent()
{
        while (Serial.available())
        {
                char c = Serial.read();
                if(c == 'g')flg_get = 1;

        }
}
```


SSCOM3.2 (作者:聂小猛(丁丁), 主页http://www.mcu51.com, Email: mcu52@163.com)2003.6.24
get data ok:
gas_strength = 902
temperature = 29
get data ok:
gas_strength = 899
temperature = 30
get data ok:
gas_strength = 899
temperature = 30
get data ok:
gas_strength = 901
temperature = 30
get data ok:
gas_strength = 901
temperature = 30
get data ok:
gas_strength = 899
temperature = 30
get data ok:
gas_strength = 901
temperature = 30
get data ok:
gas_strength = 900
temperature = 30
get data ok:
gas_strength = 900
temperature = 30
get data ok:
gas_strength = 901
temperature = 30
get data ok:
gas_strength = 904
temperature = 30
打开文件
文件名
发送文件
保存窗口
清除窗口
HEX显示
串口号
COM13
关闭串口
帮助
WWW.MCU51.COM
扩展
波特率 115200
数据位 8
停止位 1
校验位 None
流控制 None
DTR
RTS
定时发送
1000
ms/次
HEX发送
发送新行
字符串输入框:
发送
abcdefg
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作者: 聂小猛(丁丁)
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S:0
R:2631
COM13已打开 115200bps CTS=0 DSR=0 RLSD=0