LAB NOTES – ESP8266 (D1 Mini) and MH Z-19

MHZ 19

The MH Z19 is a CO2 sensor that uses NDIR technology to produce pleasingly accurate readings.

All the MH Z19's I've used have pins, and most also have a connector with a ribbon Cable. In most cases I use the ribbon cable as it allows me to play with the positioning of the sensor.

The pinouts are:

Pin	Desc	Colour (Does vary)
1	HD Zero Calibration	Brown
2	Vout (3.3v max 10mA	White
3	GND	Black
4	VIN (5V)	Red
5	RX	Blue
6	TX	Green
7	PWM Out	Yellow

D1 Mini

5V connects to VIN on the MHZ (Pin 4)

GND connects to GND on the MHZ (Pin 3)

D4 is configured as RX (Arduino Pin 2) and connects to TX on the MHZ (Pin 6)

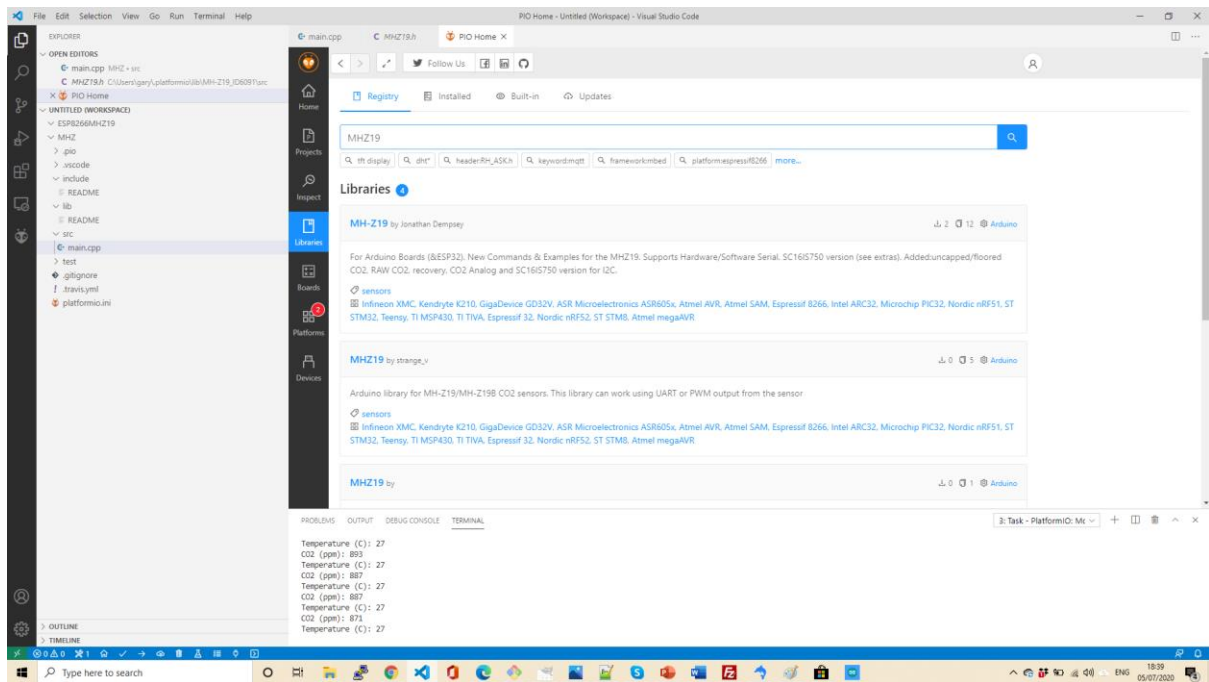D3 is configured as TX (Arduino Pin 0) and connects to RX on the MHZ (Pin 5)

MHZ Library
See John Dempsey's github page - https://github.com/WifWaf/MH-Z19?utm_source=platformio&utm_medium=piohome

Some good info in the README file here.

VS Code – Platform IO (Arduino Framework)

1) Set up the project for your board, choosing the Arduino Framework
2) Install the library -

Sample Code:

```cpp
#include <Arduino.h>

#include "MHZ19.h"

#include <SoftwareSerial.h>                          // Remove
if using HardwareSerial or Arduino package without SoftwareSerial
support


#define RX_PIN 2                                     // Rx pin
which the MHZ19 Tx pin is attached to

#define TX_PIN 0                                     // Tx pin
which the MHZ19 Rx pin is attached to

#define BAUDRATE 9600                                // Device
to MH-Z19 Serial baudrate (should not be changed)


MHZ19 myMHZ19;                                       //
Constructor for library


SoftwareSerial mySerial(RX_PIN, TX_PIN);             // (Uno
example) create device to MH-Z19 serial

//HardwareSerial mySerial(1);                        // (ESP32
Example) create device to MH-Z19 serial
```

```cpp
unsigned long getDataTimer = 0;


void setup()

{

    Serial.begin(9600);                                 //
Device to serial monitor feedback


    mySerial.begin(BAUDRATE);                           // (Uno
example) device to MH-Z19 serial start
    //mySerial.begin(BAUDRATE, SERIAL_8N1, RX_PIN, TX_PIN); //
(ESP32 Example) device to MH-Z19 serial start
    myMHZ19.begin(mySerial);                            //
*Serial(Stream) refence must be passed to library begin().


    myMHZ19.autoCalibration();                          // Turn
auto calibration ON (OFF autoCalibration(false))

}


void loop()

{

    if (millis() - getDataTimer >= 2000)

    {

        int CO2;


        /* note: getCO2() default is command "CO2 Unlimited". This
returns the correct CO2 reading even

        if below background CO2 levels or above range (useful to
validate sensor). You can use the

        usual documented command with getCO2(false) */


        CO2 = myMHZ19.getCO2();                         //
Request CO2 (as ppm)


        Serial.print("CO2 (ppm): ");
```

```
        Serial.println(CO2);


        int8_t Temp;

        Temp = myMHZ19.getTemperature();                    //
Request Temperature (as Celsius)

        Serial.print("Temperature (C): ");

        Serial.println(Temp);


        getDataTimer = millis();

    }

}
```
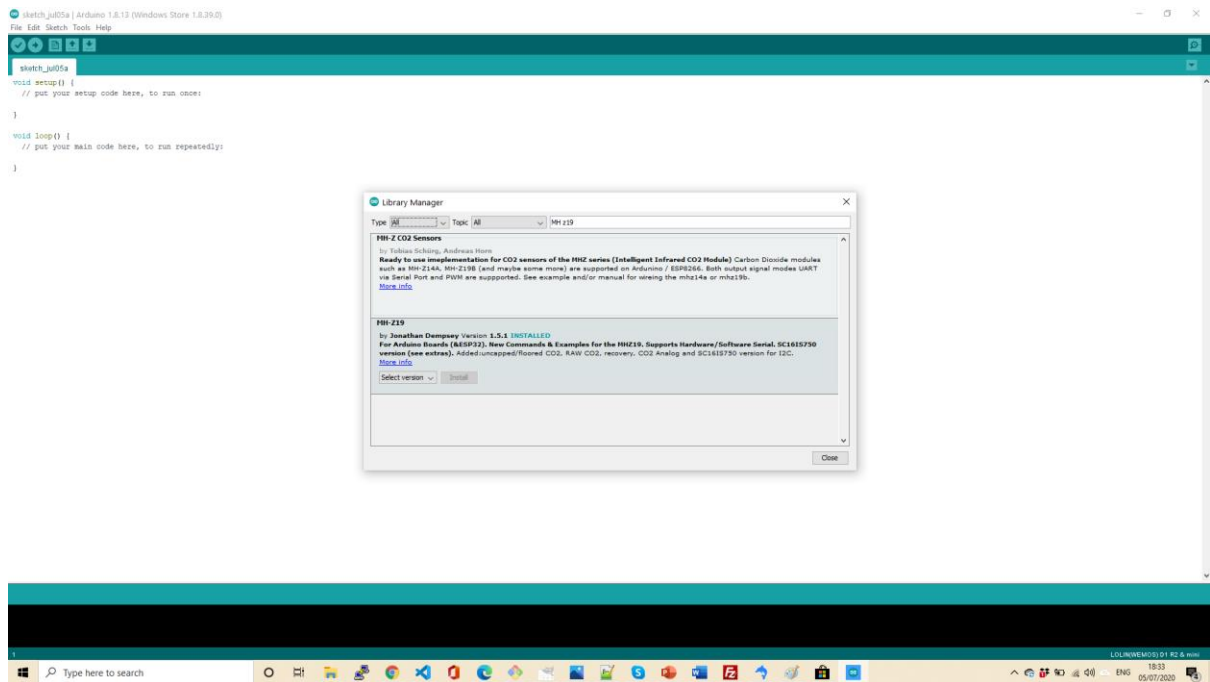
Arduino IDE

1. Select your board
2. Install the library

Install MH Z19 Library – Pick Jonathan Dempsey's Library

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```