M_Q135.h

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```
<code>
/*************************************************************************
****/
/*!
@file     MQ135.h
@author   G.Krocker (Mad Frog Labs)
@license  GNU GPLv3
@section  HISTORY

v1.0 - First release
*/
/*************************************************************************
****/
#ifndef MQ135_H
#define MQ135_H
#if ARDUINO >= 100
 #include "Arduino.h"
#else
 #include "WProgram.h"
#endif

/// The load resistance on the board
#define RLOAD 10.0
/// Calibration resistance at atmospheric CO2 level
#define RZERO 65
/// Parameters for calculating ppm of CO2 from sensor resistance
#define PARA 116.6020682
#define PARB 2.769034857
</code>

  *Rzero is the value of the resistor in the MQ-135 sensor in the
presence of clean air. Where the CO <sub>2</sub> value is around 397.13
ppm as given below. The Rzero value varies for each individual sensor
and can be found using another Arduino
[[amc2021:groupl:extras:r0:start|code]]
  *RLOAD meanwhile is the external resistor value that is connected to
the MQ-135 sensor, which in this case is 10kΩ.
  *Important parameters are for calculating CO<sub>2</sub> of 116.6 and
2.79 are taken from a calibration graph as seen from the
[[https://www.electronicoscaldas.com/datasheet/MQ-135_Hanwei.pdf|datash
eet]]. This shows the sensitivity of the sensor varies for each gas.
{{ :amc2021:groupL:extras:mq-135:screenshot_2021-09-03_at_01.11.54.png
|here}}

<code>
```

```
/// Parameters to model temperature and humidity dependence
#define CORA 0.00035
#define CORB 0.02718
#define CORC 1.39538
#define CORD 0.0018

/// Atmospheric CO2 level for calibration purposes
#define ATMOCO2 397.13

class MQ135 {
 private:
  uint8_t _pin;

 public:
  MQ135(uint8_t pin);
  float getCorrectionFactor(float t, float h);
  float getResistance();
  float getCorrectedResistance(float t, float h);
  float getPPM();
  float getCorrectedPPM(float t, float h);
  float getRZero();
  float getCorrectedRZero(float t, float h);
};
#endif
</code>
```