

DATASHEET

JULY 2019

AIR QUALITY SENSOR COMBO BOARD

VMA342

Ever wondered how good the air quality is in your living room? Or do you need proof of why you fall asleep in a non-ventilated meeting room after 3 hours? Look no further! This air quality sensor combo board will give you the answers in no time!

This air quality combo board senses the atmospheric-quality by using the popular CCS811 and BME280 ICs. It provides a variety of environmental data including barometric pressure, humidity, temperature, TVOCs and equivalent CO₂ (or eCO₂) levels. Communication is possible through the I2C protocol.

The CCS811 is an exceedingly popular sensor, providing readings for equivalent CO₂ (or eCO₂) in parts per million (PPM) and total volatile organic compounds in the parts per billion (PPB). The CCS811 also has a feature that allows it to fine-tune its readings if it has access to the current humidity and temperature. Therefore, we added the BME280, which provides humidity, temperature, and barometric pressure. This allows the sensors to work together to give us more accurate readings than they'd be able to provide on their own.

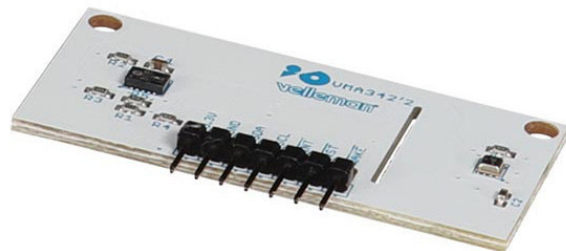
Since the CCS811 heats up a bit, the PCB is precisely designed to not influence the readings of the BME280 sensor.

FEATURES

- CCS811 and BME280 ICs
- eCO₂ sensor
- TVOC sensor
- temperature sensor
- humidity sensor
- pressure sensor
- altitude sensor

SPECIFICATIONS

- operation voltage: 3.3V
- eCO₂ sensing: from 400 to 8,192 parts per million
- Total Volatile Organic Compound (TVOC): from 0 to 1,187 parts per billion
- temperature range: -40°C (-40°F) to 85°C (185°F)
- humidity range: 0-100% RH, ±3% from 20-80%
- pressure range: 30,000Pa to 110,000Pa, relative accuracy of 12Pa, absolute accuracy of 100Pa
- altitude range: 0 to 9.2km (30,000 feet), relative accuracy of 1m (3.3 feet) at sea level, 2m (6.6 feet) at 9.2km (30,000 feet)



EXTRA'S

- The sensors can consume 13mA of current together. It takes 12mA to power the CCS811 while 1mA to power the BME280.
- The VMA342 needs a burn-in time of 48 hours and at least 20 minutes of logging before the eCO₂ and TVOC values are stable. During the first 20 minutes, the temperature and humidity might also be different from your measurements due to these compensations.
- The values read with the VMA342 are for indicative purposes only. Values should be interpreted while considering the environmental situation. Keep your living space well ventilated.

