

Datasheet:



CO2 MINI FOR MICRO:BIT

V1A - 2024-04-17

This board provides a CO₂, temperature and Relative Humidity measurements to a BBC micro:bit.

- Powered by the micro:bit
- Reverse polarity protection
- LED power indicator
- RGB LED Air Quality indicator
Green – under 1000ppm,
Orange – under 3000ppm,
Red – over 3000ppm
- Relative Humidity
- Temperature
- Serial interface



Absolute Maximum Ratings

		Units
Max. supply voltage	5.5	V

Sensing (SCD41 Sensor)

		Units
CO ₂ concentration range	400-5000	ppm
Temperature	-10+60	C
Relative humidity	0-100	%

Electrical Characteristic

		Units
Max. Current consumption	30	mA
Supply voltage	2.4-5.5	V
Serial interface baud rate	9600	baud

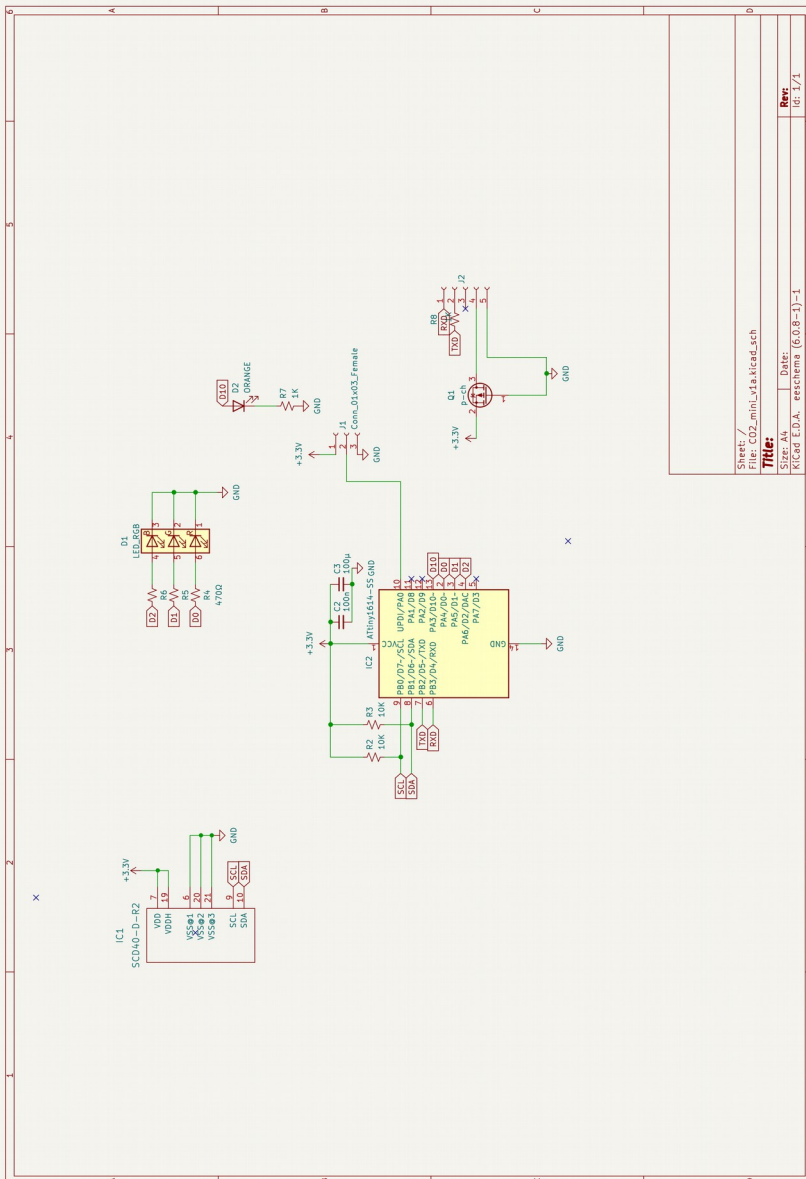


Sensing Specification

This board uses the SCD41 Sensirion sensor Module. For more information on the sensors' accuracy and precision, see the link below.

https://sensirion.com/media/documents/48C4B7FB/6426E14D/CD_DS_SCD40_SCD41_Datasheet_D1_052023.pdf

Schematic



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 ECU_minimalistic_ash
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 Date:
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Serial Protocol

All communication is at 9600 baud 8N1. Commands are a single letter with no terminating character or line feed required. Any extraneous command characters are ignored by the board. Some commands are followed by a response from the board within a few milliseconds. The responses are variable length and terminated with a \n character.

Command	Response	
c	c=550\n	Returns the CO2 level in ppm as an integer
t	t=20.5\n	Returns the temperature in degrees C as a float
h	h=50.5\n	Returns the relative humidity % as a float
k	no response, LED blinks Blue once.	Calibrate to 400ppm
m=2000	no response, LED blinks blue 4 times.	Set altitude compensation to value in metres
j	{"co2" : 550, "humidity":50, "temp":20}	Returns all three readings in JSON format
L	no response	Turn on the LED to display the current CO2 level.
l	no response	LED off
v	2\n	Returns the firmware version
f	no response, LED blinks blue 5 times.	Factory reset

Self Test

When the sensor first starts up it goes through a self-test routine, turning the RGB LED red, green and blue in turn. The LED will then blink blue for a few seconds while the sensor stabilizes.

If there is a problem during the self test, then the orange LED in the MonkMakes logo will blink an error message. The number of blinks indicates the problem with the board.

- * 1 - couldn't connect to sensor using I2C
- * 2 - couldn't take the sensor out of continuous measurement mode
- * 3 - couldn't put the sensor into continuous measurement mode