

RJ Hegler Technologies, LLC
'Simplifying Technology'
rjheglertech@gmail.com

Introducing the EVs-1 XIAO compatible VOC Sensor Shield. The EVs-1 is a versatile and compact PCB designed for seamless integration with the XIAO microcontroller and compatibility with other Arduino boards. This board interfaces the XIAO microcontrollers with three sensors: the SHT-4 for high-precision temperature and humidity measurements, the SGP41 for reliable Nox and VOC air quality monitoring, and the ICP-10111 for accurate barometric pressure readings.

Whether you're building a sophisticated environmental monitoring system or a smart home application, this PCB provides all the essential data points to create robust, reliable solutions. It ensures easy plug-and-play connectivity, streamlining your development process and expanding the functionality of your projects.

The Arduino sketches allow you to quickly read data from the sensors, see the results using the Arduino Serial Monitor and on an OLED display (if attached).

This kit includes both pin and socket 0.1" connectors. The sockets are used if you want to duplicate as shown below. the pins could be used instead if you want to install this on a breadboard to evaluate using other microcontrollers.

Arduino IDE (2.3.3) notes:

The Evs_SGP41_VOC.ino Arduino code was tested on a XIAO ESP32C3.

Initial configuration for the Arduino IDE

Add to File Preferences → Additional Boards Manager URLs:

https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json

In Library Manager, search for and install "Adafruit SHT4x Library"

search and install: "Sensirion I2C SHT4x by Sensirion"

search and install: "Sensirion Gas Index Algorithm by Sensirion"

search and install: "Sensirion I2C SGP41 by Sensirion"

search and install: "DFRobot_ICP10111"

search and install: "Oliver U8g2 Library"

Start a new sketch and replace the startup sketch with Evs_SGP41_VOC.ino, select the XIAO_ESP32C3 (or the board you are using), attach your XIAO with the VOC Shield properly attached, select Upload in Arduino IDE.

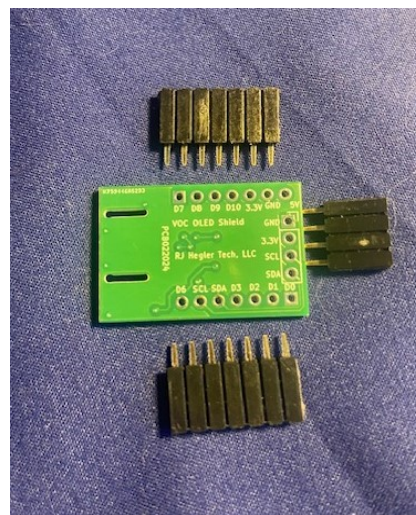
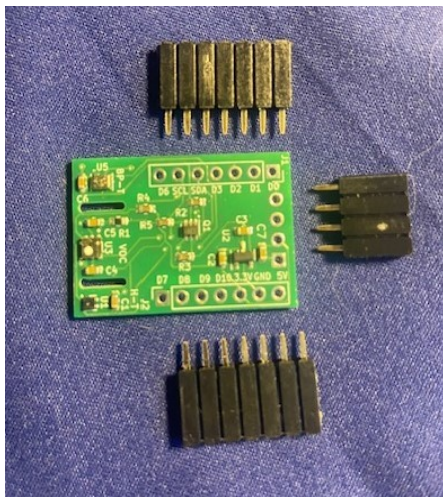
The code should compile correctly, upload and run. Monitor the data using the Serial Monitor. If you have a display attached, you should also see that displaying data.

Note: VOC will initially read "0" but it will start to display actual values after a few minutes.

Example serial monitor reading:

SHT40
T: 23.23 RH: 44.55
SGP41
VOC Index: 103 NOx Index: 1
ICP-10111 97102.02Pa
28.68inHg
Temperature: 24.26C
Altitude: 372.18m

EVs-2 SGP41 VOC as delivered:



EVs-2 SGP41 VOC showing proper orientation and connector placement:

