

RJ Hegler Technologies, LLC
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-40 for high-precision temperature and humidity measurements, the SGP40 for reliable 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).

Arduino IDE (2.3.3) notes:

The attached Arduino IDE 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: “Adafruit SGP40Sensor”

search and install: “Adafruit ICM20X”

search and install: “DFRobot ICP10111”

search and install: “Oliver U8g2 Library”

Start a new sketch and replace the startup sketch with EVs-1_OLED_VOC_0_91.ino or EVs-1_OLED_VOC_0_96.ino (depending on your OLED display), 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:

Temperature: 75.94 °F, Humidity: 42.19 %

RAW Index: 30447

Voc Index: 64

Read air pressure:32778Pa

28.97HG

Read temperature:25.28°C

Read altitude:268.12m

Example reading for a 0.96" OLED display:

EVs-1

75.94 °F, RH: 42.19 %

VOC = 64

28.97inHg