Introduction

The ENS160 sensor delivers lab-grade accuracy for TVOC (0-65,000ppb), eCO2 (400-65,000ppm), and AQI measurements - essential for healthy homes, offices, and commercial spaces.

Multi-Parameter IAQ Analysis

Simultaneously tracks three critical air quality metrics: volatile organic compounds (TVOC), equivalent CO2 (eCO2), and comprehensive Air Quality Index (AQI).
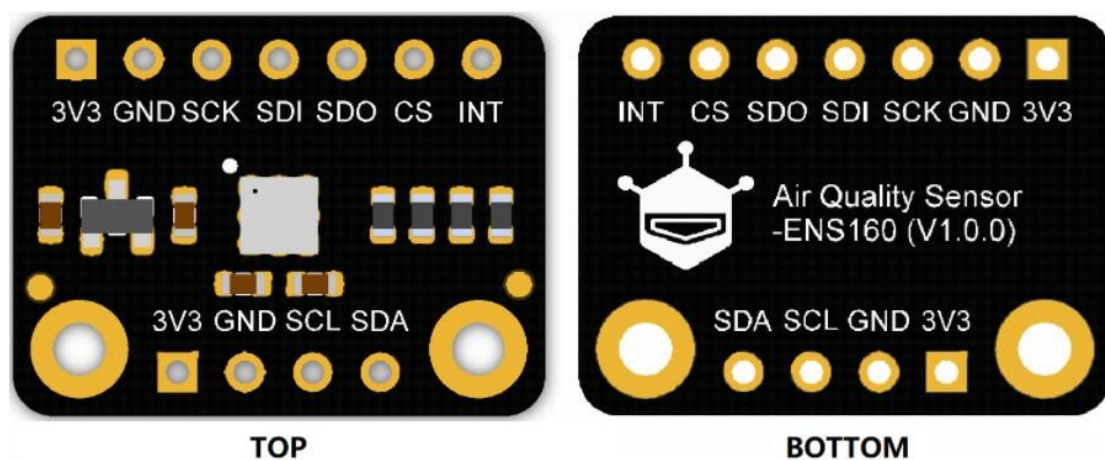
Rapid 3-Minute Warm-Up

TrueVOC™ technology achieves operational readiness 67% faster than conventional sensors, delivering actionable data when you need it most.

Self-Calibrating Accuracy

Built-in automatic baseline correction maintains ±15% measurement accuracy over years of continuous operation - no manual recalibration needed.

Smart Home Ready

I2C/SPI outputs integrate seamlessly with ESP32, Raspberry Pi, and Arduino systems for real-time air quality dashboards and automation triggers.

Board Overview

Features

Pre-loaded US EPA AQI algorithms

Compact 300mm² footprint fits any enclosure

Compatible with FireBeetle ESP32 systems

Sample code for Home Assistant/MQTT

Automatic temperature/humidity compensation

Applications

Whole-house ventilation control

Office building air quality monitoring

School/healthcare facility IAQ systems

Smart thermostat integration

Kitchen range hood automation

Specification

Measurement Ranges:
TVOC: 0-65,000ppb
eCO2: 400-65,000ppm
AQI: 1-5 (US EPA standard)

Response Time: < 1 minute

Warm-Up: 3 minutes to optimal accuracy

Operating Voltage: 3.3V DC

Interfaces: I2C (0x52/0x53), SPI

Dimensions: 20×15mm (0.79×0.59'')

Temperature Range: -40°C to 85°C

Humidity Tolerance: 5-95% RH

Documents

[Product wiki](#)

[Dimension](#)

[ENS160 Manual](#)

[DXF](#)

[STP](#)

[PCB Package](#)

Shipping List

Fermion: ENS160 Air Quality Sensor x1

2.54-4P Black Single Pin Connector x1

2.54-7P Black Single Pin Connector x1