Indoor Air Quality Sensor – ENS160 (Qwiic)

SEN-20844
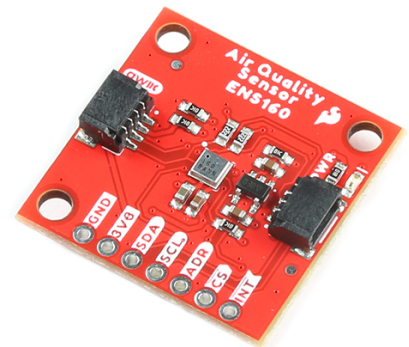
Product Overview

12/29/2023

For the most up-to-date information, visit www.mouser.com or the supplier's website.

Description

SparkFun Indoor Air Quality Sensor – ENS160 (Qwiic) is a digital multi-gas sensor solution with four independent heaters and sensor elements. The independent hotplate control detects Volatile Organic Compounds (VOCs) such as ethanol, hydrogen, toluene, and oxidizing gases with superior sensitivity. This sensor supports intelligent algorithms to process raw sensor measurements on-chip. The algorithms calculate CO_2- equivalents, Air Quality Indices (AQIs) and perform humidity and temperature compensation.
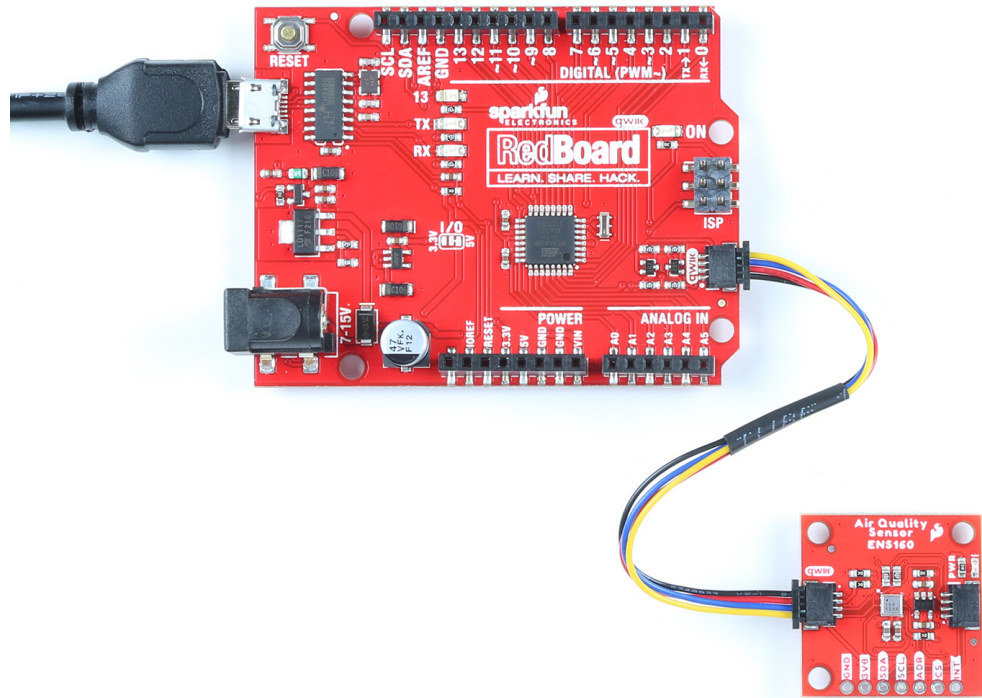
The ENS160 sensor operates from 1.71_{VDD} to 1.98_{VDD} voltage range, 1.71V to $3.6V_{VDDIO}$ voltage range, and -40°C to 85°C temperature range. This sensor uses an I²C interface and is immune to humidity and ozone. The ENS160 sensor offers outputs such as eCO_2, TVOC, and AQI compliant with worldwide Indoor Air Quality (IAQ) standards. Typical applications include building automation, smart home, and HVAC.
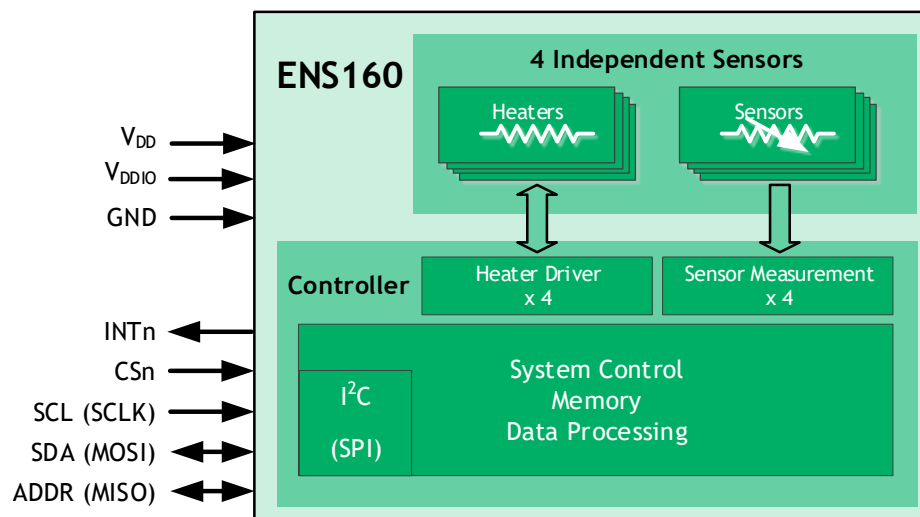
Features

- Uses I²C interface (Qwiic-enabled)
- 0x53 (Default) or 0x52 I²C addresses
- 2x Qwiic connectors
- Immunity to humidity and ozone:
  - Superior output stability over the whole T and RH operating ranges
- Effective ozone compensation
- Operating voltage range:
  - V_{DD}: 1.71V to 1.98V
  - V_{DDIO}: 1.71V to 3.6V
  - 3.3V (typical) if using the Qwiic cable

- Wide operating ranges:
  - -40°C to 85°C temperature
  - 5% to 95% humidity
- IAQ standard compliance for AQI, eCO_2, and TVOC
- Independent sensor heater control for highest VOC selectivity and outstanding background discrimination

Harware Hookup

The delightful thing about our Qwiic System is that it makes hooking up your project as easy as plug and play. Pop one end of your Qwiic connector into the controlling board and plug the other end of your Qwiic connector into your Air Quality Sensor board! Voila!
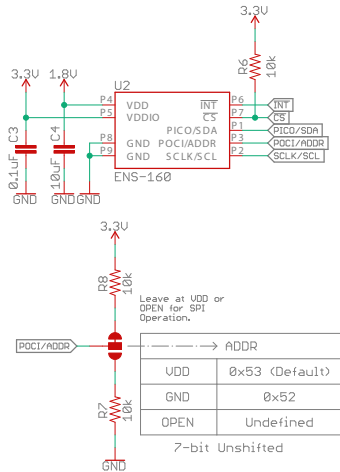

Block Diagram

Schematic Diagram
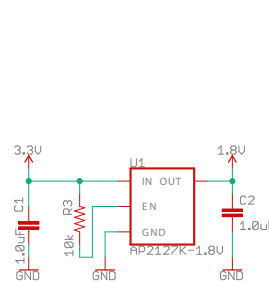

Digital Air Quality Sensor - ENS160
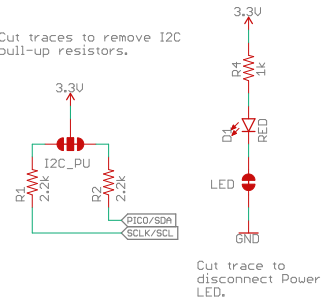VDD Range: 1.71V - 1.98V
VDDIO Range: 1.71V - 3.6V
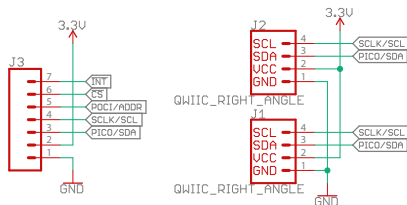
Voltage Regulation - AP2127K
Input Range: 2.6V - 6V

Jumpers

Connectors

Mouser Part Number

View Part

To learn more, visit https://www.mouser.com/new/sparkfun/sparkfun-indoor-air-quality-sensor/

The information contained in this document should be used as a guideline only.