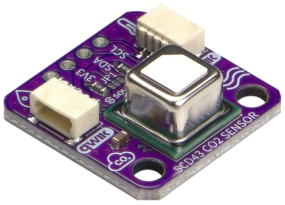
PRODUCT DATASHEET



Soldered SCD43 CO2 Sensor Breakout

333414

The Soldered SCD43 CO2 Sensor Breakout provides accurate CO2, temperature, and humidity readings with minimal maintenance for air quality monitoring.

Full product documentation, files and tutorials: **solde.red/333414**

CORE ATTRIBUTES

SKU **333414**

DIMENSIONS **22.0 × 22.0 × — mm**

BARCODE **732388636600**

DESCRIPTION

The Soldered SCD43 CO2 Sensor Breakout measures real carbon dioxide in the air around it. It does not estimate "equivalent" CO2 from a gas sensor, but takes a true optical reading from Sensirion's SCD43, a second-generation photoacoustic NDIR sensor and the most accurate member of its family, with ±(30 ppm + 3% of reading) accuracy across the 400-5000 ppm range. Since CO2 is one of the clearest signs of stuffy air and poor ventilation - the kind that makes a room feel drowsy and unfocused. This sensor fits well at the center of an air-quality monitor, smart-ventilation controller, or classroom or office display. It communicates over I2C through two Qwiic connectors, so you can plug it into your NULA board and start reading. There is also a 4-pin header for soldered wiring, plus on-board 10 kΩ pull-ups that can be removed with a solder jumper. The SCD43 also measures temperature and humidity with its built-in sensor, and it keeps its readings accurate over time with automatic self-calibration (ASC) and optional forced recalibration (FRC), with essentially no maintenance. For battery-powered projects, it has a low-power periodic mode and an on-demand single-shot mode to reduce current between readings.

TECHNICAL DETAILS

- **Sensor:** Sensirion SCD43
- **Measures:** CO2, temperature, relative humidity
- **CO2 output range:** 0 - 40,000 ppm
- **CO2 accuracy (SCD43):** ±(30 ppm + 3% of reading), 400 - 5,000 ppm
- **CO2 repeatability:** ±10 ppm
- **CO2 response time:** 60 s
- **Humidity:** 0 - 100 %RH, ±6 %RH typ (15 - 35 °C, 20 - 65 %RH)
- **Temperature:** - 10 to +60 °C, ±0.8 °C typ (15 - 35 °C)
- **Interface:** I2C, up to 400 kHz (standard + fast mode) I2C address: 0x62 (fixed)

- **Measurement modes:** periodic (5 s update), low-power periodic (~30 s), single-shot (on-demand)
- **Calibration:** automatic self-calibration (ASC) + forced recalibration (FRC), maintenance-free
- **Connectors:** 2 × Qwiic, daisy-chainable + 4-pin header (GND, 3V3, SDA, SCL)
- **Operating conditions:** - 10 to +60 °C, 0 - 95 %RH (non-condensing)
- **Board size:** 22 × 22 mm
- **Mounting:** 2 × 3.2 mm holes (M3)

SPECIFICATIONS

INTERFACE	I2C
QWIIC COMPATIBLE	Yes
I2C ADDRESS DEFAULT	0x62
I2C ADDRESS CHANGEABLE	No
BREADBOARD COMPATIBLE	Yes
MEASUREMENT TYPES	Temperature, Humidity, Gas, Air Quality
MEASUREMENT RANGE	CO2 400 - 5 000 ppm specified (0 - 40 000 ppm output); T −10 to +60 °C; RH 0 - 100 %RH
MEASUREMENT ACCURACY	CO2 ±(30 ppm + 3% of reading); T ±0.8 °C (15 - 35 °C); RH ±6 %RH (15 - 35 °C, 20 - 65 %RH)
IC PART NUMBER	SCD43
SUPPLY VOLTAGE MIN V	2.4
SUPPLY VOLTAGE MAX V	5.5

DOCUMENTS

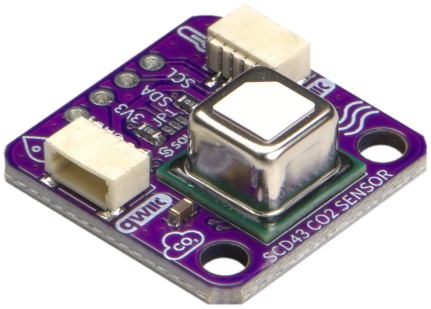
Main IC Datasheet · EN	https://cms.soldered.com/products/333414/documents/ic-datasheet/333414_ic-datasheet_ab3dec.pdf

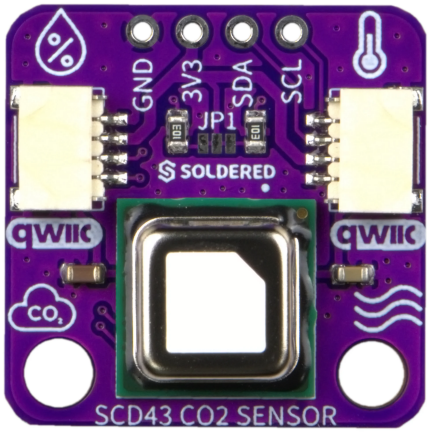
LINKS

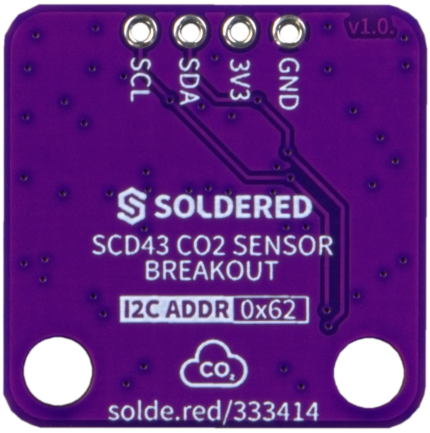
Hardware Details	https://docs.soldered.com/scd43/hardware/
Arduino Library Documentation	https://docs.soldered.com/scd43/arduino/examples/
Arduino: Get Started	https://docs.soldered.com/scd43/arduino/geting-started/
Full Documentation	https://docs.soldered.com/scd43/overview/
Open Source Hardware Files	https://docs.soldered.com/scd43/hardware/
Arduino Library	https://github.com/SolderedElectronics/Soldered-SCD43-Arduino-Library

MicroPython: Get Started	https://github.com/SolderedElectronics/Soldered-MicroPython-Modules
MicroPython Module	https://github.com/SolderedElectronics/Soldered-SCD43-MicroPython-Library
mim_package	https://checkmim.com/packages/solderedelectronics+Soldered-SCD43-MicroPython-Library

GALLERY


SCD43 CO2 SENSOR


GND
3V3
SDA
SCL
JP1
SOLDERED
qwiic
qwiic
SCD43 CO2 SENSOR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SDA
3V3
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SOLDERED
SCD43 CO2 SENSOR
BREAKOUT
I2C ADDR 0x62
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