



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 $\pm(30 \text{ ppm} + 3\% \text{ of reading})$ 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 k Ω 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):** $\pm(30 \text{ ppm} + 3\% \text{ of reading})$, 400 - 5,000 ppm
- **CO₂ repeatability:** $\pm 10 \text{ ppm}$
- **CO₂ response time:** 60 s
- **Humidity:** 0 - 100 %RH, $\pm 6 \text{ %RH typ}$ (15 - 35 °C, 20 - 65 %RH)
- **Temperature:** - 10 to +60 °C, $\pm 0.8 \text{ °C typ}$ (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
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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/getting-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>

GALLERY

