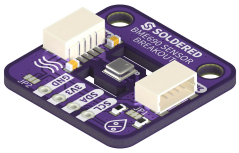
PRODUCT DATASHEET



Soldered BME690 AI temperature, humidity & gas sensor breakout

333411

A Bosch BME690 on a 22 × 22 mm Qwiic board that measures temperature, humidity, pressure and gas resistance over I2C.

Full product documentation, files and tutorials: **solde.red/333411**

CORE ATTRIBUTES

SKU	**333411**
DIMENSIONS	**22.0 × 22.0 × — mm**
ORIGIN	**HR**
BARCODE	**732388629602**

DESCRIPTION

The BME690 AI temperature, humidity & gas sensor breakout carries the Bosch BME690, which measures temperature, relative humidity, barometric pressure and the resistance of a heated metal-oxide gas sensor. Bosch's BSEC software turns the gas readings into an index for air quality (IAQ), bVOC and CO2 equivalents and gas scan results.

Temperature is accurate to **±0.5 °C** from 0 to 65 °C, humidity to **±3 % r.H.** (20 to 80 % r.H., 25 °C) and pressure to **±0.5 hPa** from 300 to 1100 hPa. The sensor operates from **-40 to 85 °C**. In sleep mode it draws **0.11 µA**, and a standard gas scan averages **3.1 mA** (Bosch figures at 1.8 V).

You connect it over **I2C**, through either of the two Qwiic connectors or the 4-pin 2.54 mm header (GND, 3V3, SDA, SCL). The default address is **0x76**; move the ADDR jumper to use **0x77**. A second jumper disconnects the 10 kΩ pull-ups on SDA and SCL. Soldered's Arduino and MicroPython libraries read the raw values and the gas resistance, and there are ESP-IDF and ESPHome components as well.

TECHNICAL DETAILS

- **Sensor:** Bosch BME690
- **Measures:** temperature, relative humidity, pressure, gas resistance
- **Temperature:** -40 to 85 °C, ±0.5 °C (0 to 65 °C), ±1 °C outside that range
- **Humidity:** 0 to 100 % r.H., ±3 % r.H. (20 to 80 % r.H., 25 °C)
- **Pressure:** 300 to 1100 hPa, ±0.5 hPa (0 to 65 °C)
- **Interface:** I2C, address 0x76 (default) or 0x77
- **Connectors:** 2x Qwiic, 4-pin 2.54 mm header (GND, 3V3, SDA, SCL)
- **Supply:** 1.71 to 3.6 V on 3V3, no regulator

- **Current:** 0.11 µA sleep, 3.1 mA average in standard gas scan mode (at 1.8 V)
- **Pull-ups:** 10 kΩ on SDA and SCL, disconnect with the jumper
- **Mounting holes:** 2× 3.2 mm
- **Dimensions:** 22 × 22 mm

SPECIFICATIONS

INTERFACE	I2C
QWIIC COMPATIBLE	Yes
I2C ADDRESS DEFAULT	0x76
I2C ADDRESS CHANGEABLE	Yes
BREADBOARD COMPATIBLE	Yes
MEASUREMENT TYPES	Temperature, Humidity, Pressure, Gas, Air Quality
MEASUREMENT RANGE	Temperature -40 to 85 °C; humidity 0 to 100 % r.H.; pressure 300 to 1100 hPa
MEASUREMENT ACCURACY	Temperature ±0.5 °C (0 to 65 °C), ±1 °C other range; humidity ±3 % r.H. (20 to 80 % r.H., 25 °C, incl. hysteresis); pressure ±0.5 hPa absolute (300 to 1100 hPa, 0 to 65 °C)
IC PART NUMBER	BME690
SUPPLY VOLTAGE MIN V	1.71
SUPPLY VOLTAGE MAX V	3.6
LOGIC LEVEL	3V3 Only
OPERATING CURRENT (MA)	3.1 mA
SLEEP CURRENT UA	0.11

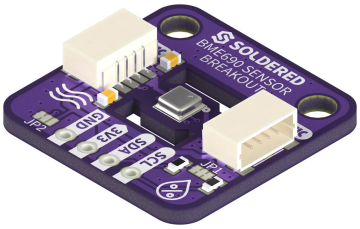
DOCUMENTS

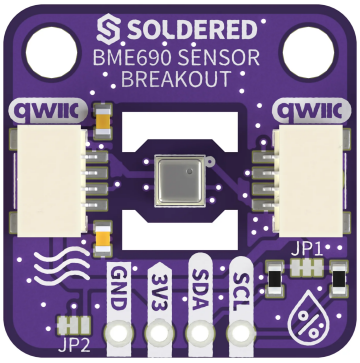
Main IC Datasheet · EN	https://cms.soldered.com/products/333411/documents/ic-datasheet/333411_ic-datasheet_ae47b2.pdf

LINKS

MicroPython Module	https://github.com/SolderedElectronics/Soldered-BME690-MicroPython-Library
Full Documentation	https://docs2.soldered.com/soldered-bme690-ai-temperature-humidity-gas-sensor-breakout/
mim_package	https://checkmim.com/packages/solderedelectronics+Soldered-BME690-MicroPython-Library
Arduino Library	https://github.com/SolderedElectronics/Soldered-BME690-Arduino-Library
Pinout	https://cms.soldered.com/products/333411/media/333411_pinout-png_722f61.png

GALLERY


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GND
3V3
SDA
SCL
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SCL