

BME688

Development kit

GENERAL DESCRIPTION

Bosch Sensortec's BME688 Development Kit allows for testing and developing use cases based on temperature, barometric pressure, humidity and gas sensing. The BME688 can detect gases by measuring their unique electronic fingerprint and therefore distinguish different gas compositions. This enables a broad spectrum of new applications.

USE CASE EXAMPLES

- ▶ Indoor and outdoor air quality measurement
- ▶ Bad breath or spoiled food detection based on the measurement of volatile sulfur compounds, which are an indicator of bacteria growth
- ▶ Detection of unusual gases and smells, which might indicate for instance a leakage or fire
- ▶ Diaper state detection, e.g. for baby care
- ▶ Early detection of bad smells
- ▶ Wildfire detection

The BME688 Development Kit can be configured with the BME AI-Studio Software. This allows to optimize performance, ODR and power consumption on specific application needs. By featuring eight BME688 sensors, the board allows you to test and gather data with more than one configuration at the same time. This significantly increases statistics and reduces development time as well.

HARDWARE

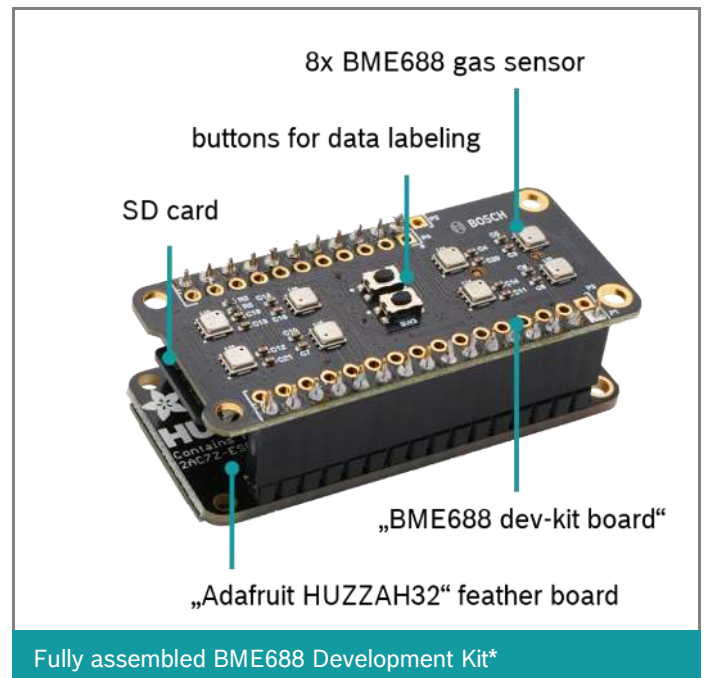
The BME688 Development Kit hardware consists of

- ▶ "BME688 dev-kit board" (ordering code 0330.EKB.016), which is an Adafruit feather compatible shield (see <https://www.adafruit.com/feather>)
- ▶ "Adafruit HUZZAH32" feather board with an ESP32 MCU (see <https://www.adafruit.com/product/3591>)
- ▶ MicroSD card for data storage
- ▶ CR1220 coin cell battery for the real-time clock

The "BME688 dev-kit board" itself can be purchased with the ordering code 0330.EKB.016. Several distributors offer a bundle with all hardware components. If a plug and play solution is

preferred, a fully assembled and programmed BME688 Development Kit can be ordered at

<https://buyzero.de/products/bosch-bme688-gas-sensor-developer-kit>.



SOFTWARE

The BME AI-Studio Software enables sensor configuration, data analysis & labelling, training and optimization of application-specific solutions. The software is designed very user-friendly and supports with a comprehensive documentation.

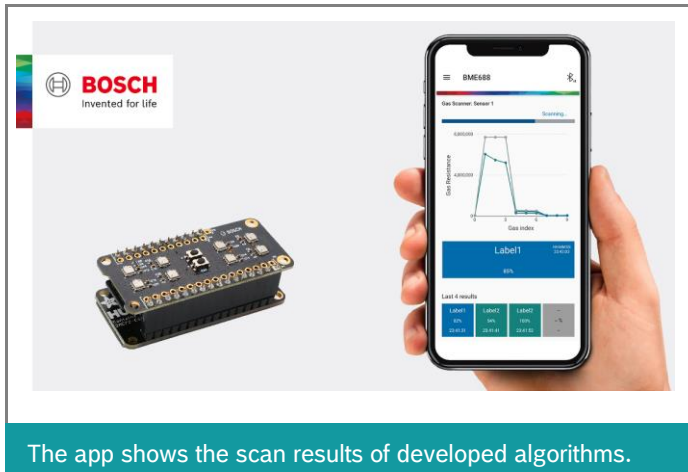
The software can be downloaded at: <https://www.bosch-sensortec.com/software-tools/software/BME688-software/>



SETUP DEV-KIT

If you start with a new Adafruit HUZAZH32 board, which is not yet programmed, you can flash it by following these steps:

- 1) Download the dev-kit software from <https://www.bosch-sensortec.com/software-tools/software/BME688-software/>
- 2) Copy the *.bmeconfig file on the microSD card
- 3) Place microSD card and CR1220 coin cell into dev-kit board and stack it on the Adafruit board
- 4) Download & install USB driver from https://www.silabs.com/documents/public/software/CP210x_Universal_Windows_Driver.zip
- 5) Connect the board to PC via micro-USB data cable
- 6) Run “flash.bat” on PC by choosing the right COM port (type e.g. “COM12” for port 12)



USAGE

The programmed BME688 Development Kit directly starts logging data after connecting it to USB power supply via micro-USB cable. All eight BME688 are operated in the standard gas scan mode and the data is being logged on the microSD card. You can directly use the two buttons on the board to set time stamps in the data log for atmosphere changes. This makes data labelling very easy afterwards.

For adjusting the real-time clock (“RTC”), the easiest method is to download the BME688 Development Kit App from <https://www.bosch-sensortec.com/software-tools/software/BME688-software/>, install it on your phone and connect the BME688 Development Kit by BLE.

Now, you can develop your own use-case together with BME AI-Studio. There is more information & documentation in the BME AI-Studio Software. Just download it or watch this getting started video: <https://youtu.be/4vdliMRtxBY>

Once you have trained an algorithm with BME AI-Studio, you can export it as “.config” and copy to the microSD card of the Development Kit. After done so, the BME688 Development Kit App will visualize the scans and results live on your phone.

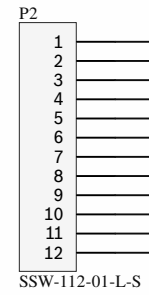
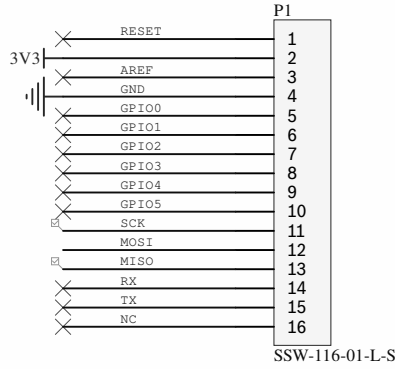
Headquarters

Bosch Sensortec GmbH

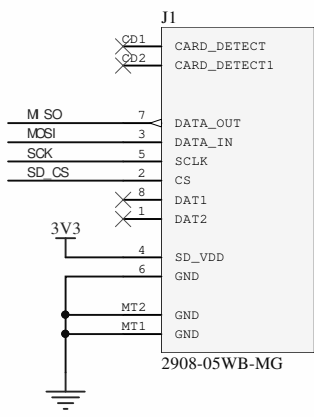
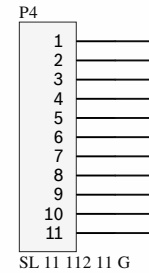
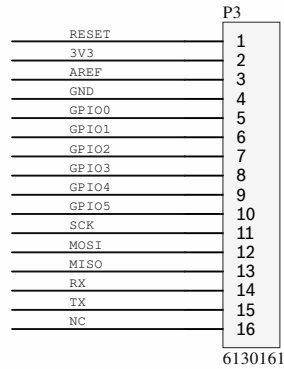
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Sensor



adafruit connector



microSD card slot

