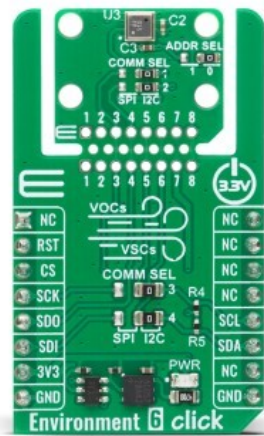


Environment 6 Click



PID: MIKROE-6536

Environment 6 Click is a compact add-on board that provides a complete environmental sensing solution for precise monitoring of air quality and ambient conditions. It is based on the [BME690](#), the world's smallest 4-in-1 environmental sensor with integrated AI from [Bosch Sensortec](#). The sensor can detect volatile organic compounds, volatile sulfur compounds, carbon monoxide, hydrogen, and other gases, while its gas scanner function provides extended measurements to evaluate overall indoor or outdoor air quality with excellent measurement accuracy for pressure, humidity, and temperature. It features the innovative Click Snap format, and communicates over both SPI and I2C interfaces. This Click board is ideal for wearables, smart home devices, healthcare solutions, and mobile applications requiring reliable and efficient air quality monitoring.

For more information about **Environment 6 Click** visit the official [product page](#).

How does it work?

Environment 6 Click is based on the BME690, the world's smallest 4-in-1 environmental sensor with integrated AI from Bosch Sensortec. This board combines gas, humidity, pressure, and temperature measurement and provides a highly integrated environmental sensing solution designed for precise monitoring of air quality and ambient conditions. The BME690 is capable of detecting volatile organic compounds, volatile sulfur compounds, carbon monoxide, hydrogen, and other gases, and it includes a gas scanner function that offers extended measurements to evaluate overall indoor or outdoor air quality. By using Bosch's software, gas readings can be analyzed further, and AI-driven algorithms can be trained to detect specific environmental indicators such as the likelihood of bacteria growth or the presence of organic

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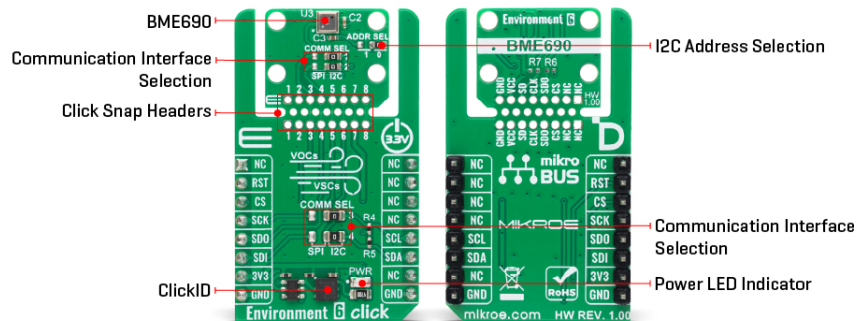


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contaminants, delivering reliable and adaptable data for a wide range of use cases.



The BME690 provides key outputs such as Index for Air Quality, bVOC- and CO₂-equivalent values, ensuring actionable insights into environmental health. It supports a full operating range with pressure accuracy of ± 0.05 hPa, humidity accuracy of $\pm 3\%$ RH, and temperature accuracy of $\pm 0.5^\circ\text{C}$ within 0 to 65°C range, making it suitable for demanding applications including wearables, mobile devices, smart home solutions, and care-related products.

This Click board™ is designed in a unique format supporting the newly introduced MIKROE feature called "Click Snap." Unlike the standardized version of Click boards, this feature allows the main sensor/IC/module area to become movable by breaking the PCB, opening up many new possibilities for implementation. Thanks to the Snap feature, the BME690 can operate autonomously by accessing its signals directly on the pins marked 1-8. Additionally, the Snap part includes a specified and fixed screw hole position, enabling users to secure the Snap board in their desired location.

This board supports communication with the host MCU through either SPI (maximum clock frequency of 10MHz) or I2C (maximum clock frequency of 3.4MHz) interfaces, with I2C being the default option. The communication interface is selected by adjusting the COMM SEL jumper to the desired position. To enhance flexibility, particularly with the detachable Snap section of the Click Snap format, an additional COMM SEL jumpers are available. These jumpers functions the same as the COMM SEL, allowing for independent communication interface selection when the Snap section is used independently. To ensure proper functionality, all COMM jumpers must be set to the same interface. For those using the I2C interface, the board also provides an ADDR SEL jumper, enabling users to configure the I2C address as needed for their specific application.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. It also comes equipped with a library containing functions and example code that can be used as a reference for further development.

Click Snap

Click Snap is an innovative feature of our standardized Click add-on boards, designed to bring greater flexibility and optimize your prototypes. By simply snapping the PCB along predefined lines, you can easily detach the main sensor/IC/module area, reducing the overall size, weight,

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and power consumption - ideal for the final phase of prototyping. For more details about Click Snap, visit the [official page](#) dedicated to this feature.

Specifications

| | |
|------------------|--|
| Type | Environmental |
| Applications | Ideal for wearables, smart home devices, healthcare solutions, and mobile applications requiring reliable and efficient air quality monitoring |
| On-board modules | BME690 - 4-in-1 environmental sensor with AI from Bosch Sensortec |
| Key Features | 4-in-1 environmental sensor with integrated AI, support for gas, humidity, pressure, and temperature measurement, detection of volatile organic compounds, volatile sulfur compounds, carbon monoxide, hydrogen, and other gases, gas scanner function for extended air quality monitoring, outputs for Index for Air Quality, bVOC-equivalent and CO2-equivalent values, high accuracy, SPI and I2C interface, Click Snap feature, and more |
| Interface | I2C,SPI |
| Feature | Click Snap,ClickID |
| Compatibility | mikroBUS™ |
| Click board size | M (42.9 x 25.4 mm) |
| Input Voltage | 1.8V,3.3V |

Pinout diagram

This table shows how the pinout on Environment 6 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

| Notes | Pin | mikroBUS | | | | Pin | Notes |
|----------------------|-------------|----------|------|-----|----|------------|-----------|
| | NC | 1 | AN | PWM | 16 | NC | |
| ID SEL | RST | 2 | RST | INT | 15 | NC | |
| SPI Select / ID COMM | CS | 3 | CS | RX | 14 | NC | |
| SPI Clock | SCK | 4 | SCK | TX | 13 | NC | |
| SPI Data OUT | SDO | 5 | MISO | SCL | 12 | SCL | I2C Clock |
| SPI Data IN | SDI | 6 | MOSI | SDA | 11 | SDA | I2C Data |
| Power Supply | 3.3V | 7 | 3.3V | 5V | 10 | NC | |
| Ground | GND | 8 | GND | GND | 9 | GND | Ground |

Onboard settings and indicators

| Label | Name | Default | Description |
|---------|----------|---------|---------------------|
| LD1 | PWR | - | Power LED Indicator |
| JP1-JP2 | COMM SEL | Right | Snap-Side |

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| | | | |
|---------|----------|-------|--|
| | | | Communication Interface Selection SPI/I2C: Left position SPI, Right position I2C |
| JP3 | ADDR SEL | Right | I2C Address Selection 1/0: Left position 1, Right position 0 |
| JP4-JP5 | COMM SEL | Right | mikroBUS-Side Communication Interface Selection SPI/I2C: Left position SPI, Right position I2C |

Environment 6 Click electrical specifications

| Description | Min | Typ | Max | Unit |
|-------------------------------|-----|-----------|------|------|
| Supply Voltage | - | 1.8 / 3.3 | - | V |
| Pressure Measurement Range | 300 | - | 1100 | hPa |
| Pressure Accuracy | - | ±0.05 | ±0.5 | hPa |
| Humidity Measurement Range | 0 | - | 100 | %RH |
| Humidity Accuracy | - | ±3 | - | %RH |
| Temperature Measurement Range | -40 | - | +85 | °C |
| Temperature Accuracy (0-65°C) | - | ±0.5 | - | °C |

Software Support

[Environment 6 Click](#) demo application is developed using the [NECTO Studio](#), ensuring compatibility with [mikroSDK](#)'s open-source libraries and tools. Designed for plug-and-play implementation and testing, the demo is fully compatible with all development, starter, and mikromedia boards featuring a [mikroBUS™](#) socket.

Example Description

This example demonstrates the use of the Environment 6 Click board, which integrates a high-precision environmental sensor for measuring temperature, humidity, pressure, and gas resistance. The application initializes the device and periodically reads and logs all available environmental parameters via UART.

Key Functions

- `environment6_cfg_setup` This function initializes Click configuration structure to initial values.
- `environment6_init` This function initializes all necessary pins and peripherals used for this Click board.
- `environment6_default_cfg` This function executes a default configuration of Environment 6 Click board.
- `environment6_set_sensor_conf` This function configures the sensor oversampling, filter, and data rate.
- `environment6_set_gas_conf` This function sets the heater temperature, duration, and enables gas measurements.
- `environment6_get_data` This function triggers a measurement and reads temperature, pressure, humidity, and gas resistance data.

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Application Init

Initializes the logger and configures the Environment 6 Click. It sets up communication and applies the default configuration to the sensor.

Application Task

Continuously reads temperature (degC), humidity (%RH), pressure (mBar), and gas resistance (Ohms) if enabled, then logs the measured values every second.

Application Output

This Click board can be interfaced and monitored in two ways:

- Application Output - Use the "Application Output" window in Debug mode for real-time data monitoring. Set it up properly by following [this tutorial](#).
- UART Terminal - Monitor data via the UART Terminal using a [USB to UART converter](#). For detailed instructions, check out [this tutorial](#).

Additional Notes and Information

The complete application code and a ready-to-use project are available through the NECTO Studio Package Manager for direct installation in the [NECTO Studio](#). The application code can also be found on the MIKROE [GitHub](#) account.

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[Environment 6 click example package](#)

[Environment 6 click 2D and 3D files v100](#)

[BME690 datasheet](#)

[Environment 6 click schematic v100](#)

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