Air quality 2 click

PID: MIKROE-2529

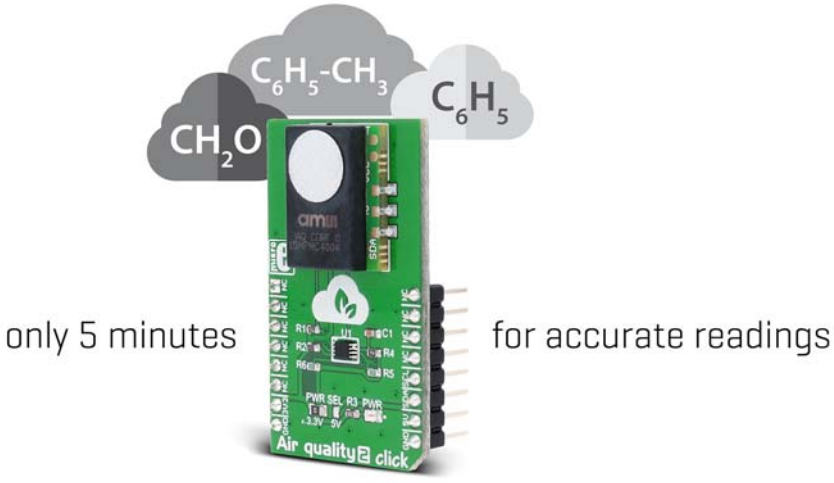
Air quality 2 click carries the iAQ-Core Indoor Air Quality sensor that measures VOC (volatile organic compounds) levels and provides CO2 equivalent and TVOC (total volatile organic compounds) equivalent predictions. The click is designed to run on either 3.3V or 5V power supply. It communicates with the target MCU over I2C.

iAQ-Core sensor

The sensor is protected by a plastic cap and a filter membrane. This membrane should not be removed or touched.

The sensing range for CO2 equivalents is from 450 to 2000 ppm (parts per million), and from 125 to 600 ppb (parts per billion) for TVOC equivalents.

Know everything in 5 minute



It takes only 5 minutes for the first functional reading after start up time. After the sensor is powered on, you don't have to wait for it to calibrate. You'll have all the readings you need in less time than it takes to make a cup of coffee.

ABC - Automatic Baseline Correction

iAQ-Core sensor has Automatic Baseline Correction (ABC), which means that you don't need to make any further calibration. You'll be able to use it for many years in a normal indoor environment.

Low power consumption

With low power consumption (maximum of 9mW in pulsed mode and 66mW in continuous mode) Air quality 2 click is ideal for Smart Home applications and IoT projects and devices that require long battery life.

VOC or volatile organic compounds

Volatile organic compounds or VOCs are **organic chemicals**. They have very high vapor pressure at room temperature, and some of them can be harmful to human health.

These chemicals are carbon-based (formaldehyde, toluene, benzene, etc.) and they got the name "volatile" from the fact that they become gases at room temperature.

They are emitted from various products, like hairspray, household cleaning products, paint, or air freshener, that we use every day.

C02 equivalent

CO2 equivalent or CO2e, represents a unit of measurement for the amount of CO2 present in some "greenhouse gas".

Key features

- iAQ-Core sensor sensing range:
  - 450 – 2000 ppm CO2 equivalents
  - 125 – 600 ppb TVOC equivalents
- I2C interface
- 3.3V or 5V power supply

SPECIFICATION

Product Type	Gas
Applications	Smart Home applications, Internet of Things devices, HVAC, thermostats, etc.
On-board modules	iAQ-Core sensor
Key Features	Low power consumption, measures VOC levels and provides CO2 equivalent and TVOC equivalent predictions.
Key Benefits	Reliable evaluation of indoor air quality, high sensitivity and fast response.
Interface	I2C
Power Supply	3.3V or 5V
Compatibility	mikroBUS
Click board size	M (42.9 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **Air quality 2 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS™				Pin	Notes
Not connected	NC	**1**	AN	PWM	**16**	NC	Not connected
Not connected	NC	**2**	RST	INT	**15**	NC	Not connected
Not connected	NC	**3**	CS	TX	**14**	NC	Not connected
Not connected	NC	**4**	SCK	RX	**13**	NC	Not connected
Not coneected	NC	**5**	MISO	SCL	**12**	**SCL**	I2C clock

Not connected	NC	**6**	MOSI	SDA	**11**	**SDA**	I2C data
Power supply	**+3.3V**	**7**	3.3V	5V	**10**	**+5V**	Power supply
Ground	**GND**	**8**	GND	GND	**9**	**GND**	Ground

Programming

Code examples for Air quality 2 click, written for MikroElektronika hardware and compilers are available on Libstock.

The library has a helper function to read the iAQ-Core sensor measurements. The demo initializes the library, and in an endless loop reads the measurement data, and writes them to the UART.

Code snippet

The code snippet shows how to initialize the library and use the helper function to read measurements data from the iAQ-Core sensor.

```
1 static iaq_status_t iaq_status;
2 static iaq_info_t info;
3 void main()
4 {
5     I2C1_Init_Advanced( 100000, &_GPIO_MODULE_I2C1_PB67 );
6     air_quality_2_click_init();
7     iaq_status = air_quality_2_click_info(&info);
8     while(1);
9 }
```