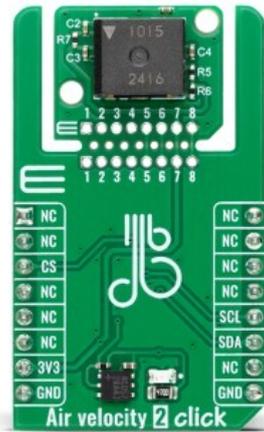


## Air Velocity 2 Click



PID: MIKROE-6577

**Air Velocity 2 Click** is a compact add-on board that provides precise air velocity measurements for airflow monitoring in various environmental and industrial applications. It is based on the [FS3000-1015](#), a digital air velocity sensor module from [Renesas](#). This MEMS thermopile-based sensor offers 12-bit digital output resolution and supports air velocity readings from 0 to 15 meters per second. It features robust “solid” thermal isolation technology, a silicon-carbide protective coating, and high resistance to vibration, pressure shock, and surface contamination. The Click board™ uses an I2C interface and supports MIKROE's innovative Click Snap feature, allowing the sensor portion to be detached and mounted separately using the designated screw hole, enabling flexible installation and standalone operation. This Click board™ is ideal for applications such as HVAC systems, data center airflow management, laminar flow control, and air filtration or collection systems.

For more information about **Air Velocity 2 Click** visit the official [product page](#).

### How does it work?

Air Velocity 2 Click is based on the FS3000-1015, a digital air velocity sensor module from Renesas that provides precise air velocity measurements. This MEMS-based sensor operates on the principle of a thermopile, offering a highly sensitive and reliable method for measuring airflow with a digital output resolution of 12 bits. Designed for demanding environments, the FS3000-1015 incorporates advanced “solid” thermal isolation technology and a protective silicon-carbide coating, making it resistant to surface contamination, abrasive wear, vibration, and pressure shock. It supports air velocity measurements ranging from 0 to 15 meters per second, corresponding to digital output counts between 409 and 3686.

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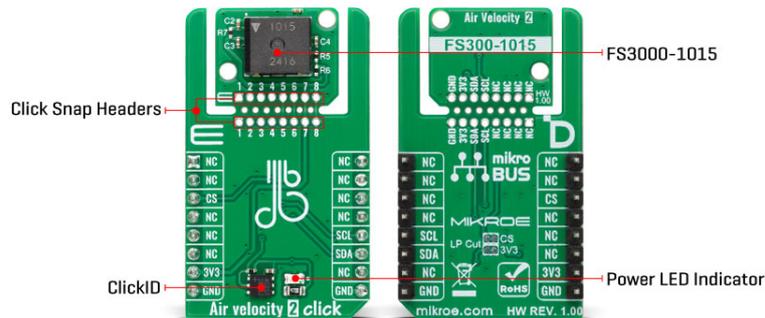
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ISO 27001: 2013 certification of informational security management system.  
 ISO 14001: 2015 certification of environmental management system.  
 OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).



The sensor's robust construction and compact surface-mount design make it suitable for integration into low-profile enclosures and applications that require long-term durability. Air Velocity 2 Click communicates with the host microcontroller via the standard I2C interface, operating at clock speeds up to 400kHz to ensure efficient and responsive data transmission. Its low-power operation and high accuracy make it ideal for use in applications such as data centers, HVAC systems, laminar flow controls, and air filtration or collection systems where reliable airflow monitoring is essential.

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 FS3000-1015 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 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, 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 applications such as HVAC systems, data center airflow management, laminar flow control, and air filtration or collection systems
On-board modules	FS3000-1015 - digital air velocity sensor

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	module from Renesas
Key Features	Air velocity measurement from 0 to 15 meters per second, 12-bit digital output resolution, MEMS thermopile-based sensing principle, robust “solid” thermal isolation technology, silicon-carbide protective coating, resistance to surface contamination, vibration, and pressure shock, compact surface-mount sensor design, I2C communication interface, low-power operation, Click Snap support, and more
Interface	I2C
Feature	Click Snap, ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

## Pinout diagram

This table shows how the pinout on Air Velocity 2 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	
	NC	2	RST	INT	15	NC	
ID COMM	<b>CS</b>	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	<b>SCL</b>	I2C Clock
	NC	6	MOSI	SDA	11	<b>SDA</b>	I2C Data
Power Supply	<b>3.3V</b>	7	3.3V	5V	10	NC	
Ground	<b>GND</b>	8	GND	GND	9	<b>GND</b>	Ground

## Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator

## Air Velocity 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Air Velocity Range	0	-	15	m/s
Output Count Range	409	-	3686	-

## Software Support

[Air Velocity 2 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

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mikromedia boards featuring a [mikroBUS™](#) socket.

## Example Description

This example demonstrates the use of Air Velocity 2 Click board by reading and displaying the output counts and air velocity in m/sec.

### Key Functions

- `airvelocity2_cfg_setup` This function initializes Click configuration structure to initial values.
- `airvelocity2_init` This function initializes all necessary pins and peripherals used for this Click board.
- `airvelocity2_read_output` This function reads the raw output counts by using I2C serial interface.
- `airvelocity2_counts_to_mps` This function converts raw output counts to velocity in m/sec (0-15).

### Application Init

Initializes the driver and logger.

### Application Task

Reads the output counts and converts it to air velocity in m/sec. Both values will be displayed on the USB UART approximately every 125ms.

## 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](#)

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## Downloads

[Air Velocity 2 click example package](#)

[Air Velocity 2 click 2D and 3D files v100](#)

[FS3000-1015 datasheet](#)

[Air Velocity 2 click schematic v100](#)

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