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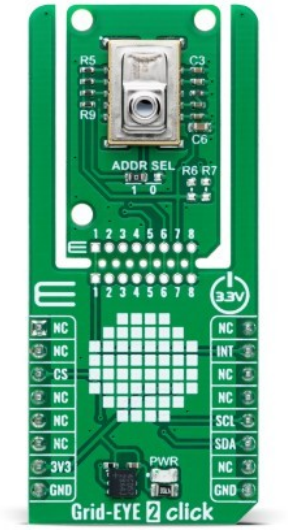
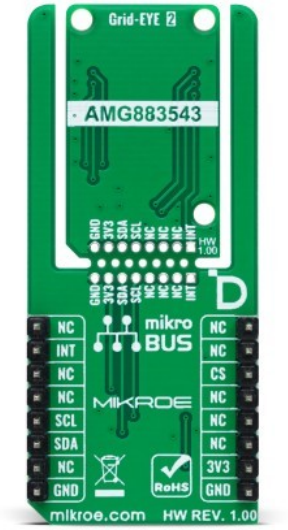
Grid-EYE 2 Click





PID: MIKROE-6208

Grid-EYE 2 Click is a compact add-on board designed for thermal imaging and motion detection applications. This board features the AMG883543, an infrared array sensor from Panasonic Semi with a 90° viewing angle and an 8x8 pixel matrix that measures temperatures from 0°C to 80°C with a resolution of 0.25°C. The sensor can detect objects up to 5 meters away and outputs temperature data via a digital interface. The board also supports the Click Snap feature, allowing the main sensor area to be detached for flexible positioning. Communication is handled through a standard 2-wire I2C interface, and the board includes an interrupt pin for efficient temperature monitoring. This Click board™ is ideal for developing thermal imaging systems, enhancing home appliances, improving office energy efficiency, and applications in digital signage, automatic doors, and elevators.

How does it work?

Grid-EYE 2 Click is based on the AMG883543, an infrared array sensor from Panasonic with a 90° viewing angle. It captures temperature data across a two-dimensional 8x8 matrix (64 pixels) and provides this information as a digital output. Each pixel measures temperatures ranging from 0°C to 80°C with a resolution of 0.25°C, allowing the detection of objects at distances up to 5 meters. With its ability to create thermal images and detect movement, Grid-EYE 2 Click is ideal for developing thermal imaging systems, monitoring people and objects, enhancing high-performance home appliances (like microwave ovens and air conditioners), promoting energy efficiency in offices (through air-conditioning and lighting controls), and applications in digital signage, automatic doors, elevators, and more.

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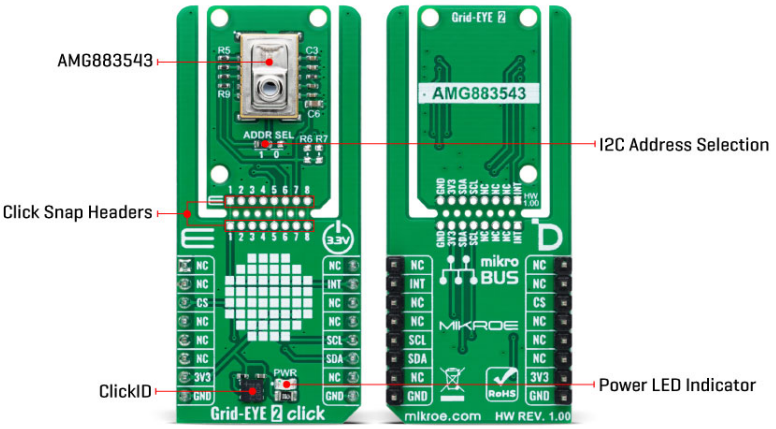

This Click board™ is designed in a unique format supporting the newly introduced MIKROE feature called "Click Snap." Unlike the standardized version of Click boards, this feature allows the main sensor area to become movable by breaking the PCB, opening up many new possibilities for implementation. Thanks to the Snap feature, the AMG883543 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.

Grid-EYE 2 Click uses a standard 2-wire I2C interface to communicate with the host MCU, supporting Standard mode with up to 400kHz of frequency clock. In addition to the I2C interface pins, this board also uses an interrupt (INT) pin and a jumper for I2C address selection, ADDR SEL. The interrupt pin can signal the host MCU when a specific condition is met, such as when the temperature in any of the sensor's pixels exceeds a predefined threshold. This allows the system to respond immediately to changes in temperature without constantly polling the sensor, thereby saving processing power and energy.

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. Also, it comes equipped with a library containing functions and an 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, introducing a new level of flexibility and ease of use. This feature allows for easy detachment of the main sensor area by simply snapping the PCB along designated lines, enabling various implementation possibilities. For detailed information about Click Snap, please visit the official page dedicated to this feature.

Specifications

Type	Temperature & humidity
Applications	Ideal for thermal imaging systems, enhancing home appliances, improving office energy efficiency, and applications in digital signage
On-board modules	AMG883543 - infrared array sensor from

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	Panasonic
Key Features	8x8 pixel matrix (64 pixels) infrared sensor, 90° viewing angle, wide temperature range, high resolution, up to 5m detection range, Click Snap feature, low power consumption, and more
Interface	I2C
Feature	Click Snap,ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on Grid-EYE 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	**INT**	Interrupt
ID COMM	**CS**	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	I2C Clock
	NC	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	ADDR SEL	Left	I2C Address Selection 1/0: Left position 1, Right position 0

Grid-EYE 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Image Resolution	-	-	64	px
Temperature Operating Range	0	-	80	°C
Temperature Resolution	-	0.25	-	°C
Distance	-	5	-	m

Software Support

We provide a library for the Grid-EYE 2 Click as well as a demo application (example), developed using MIKROE compilers. The demo can run on all the main MIKROE development boards.

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Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock™ or found on MIKROE github account.

Library Description

This library contains API for Grid-EYE 2 Click driver.

Key functions

- gridеye2_get_int_pin This function returns the INT pin logic state.
- gridеye2_read_grid This function reads the temperature measurement of an 8x8 pixels grid and stores it in the ctx->grid_temp array.
- gridеye2_clear_status This function clears the interrupt status flags.

Example Description

This example demonstrates the use of Grid-EYE 2 Click by reading and displaying the temperature measurements as an 8x8 pixels grid.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our LibStock™ or found on MIKROE github account.

Other MIKROE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.GridEYE2

Additional notes and informations

Depending on the development board you are using, you may need USB UART click, USB UART 2 Click or RS232 Click to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE compilers.

mikroSDK

This Click board™ is supported with mikroSDK - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the LibStock and installed for the compiler you are using.

For more information about mikroSDK, visit the official page.

Resources

mikroBUS™

mikroSDK

Click board™ Catalog

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Click boards™

ClickID

Downloads

Grid-EYE 2 click example on Libstock

AMG883543 datasheet

Grid-EYE 2 click 2D and 3D files v100

Grid-EYE 2 click schematic v100