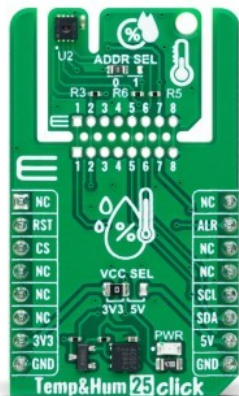


# Temp&Hum 25 Click



PID: MIKROE-6241

Temp&Hum 25 Click is a compact add-on board designed for precise temperature and humidity monitoring. This board features the SHT33-DIS-B2.5KS, a high-reliability, third-generation relative humidity and temperature sensor from Sensirion. This sensor offers exceptional accuracy and reliability, with a range of 0-100% RH and -40 to +125°C, and features ISO17025-certified calibration, CMOSens® technology, and NIST-traceability. The board supports the new Click Snap feature, allowing easy detachment of the sensor area for flexible use. It uses a 2-Wire I2C interface with selectable addresses and supports both 3.3V and 5V logic levels. Ideal for portable electronics and industrial, consumer, and environmental applications, Temp&Hum 25 Click ensures reliable and accurate measurements in various conditions.

## How does it work?

Temp&Hum 25 Click is based on the SHT33-DIS-B2.5KS, a high-reliability, third-generation relative humidity and temperature sensor from Sensirion. This advanced sensor is part of Sensirion's new family of low drift digital calibrated and ISO17025-certified sensors, offering exceptional accuracy and reliability. The SHT33-DIS-B2.5KS integrates ISO17025-certified temperature sensing with highly precise humidity measurements, all within a single small package. Using the industry-proven CMOSens® technology, this sensor provides enhanced computational power, increased reliability, and superior accuracy compared to its predecessors. Its robust performance and reliability make it a versatile choice for a wide range of temperature and humidity-related applications in portable electronics and industrial, consumer, and environmental scenarios.

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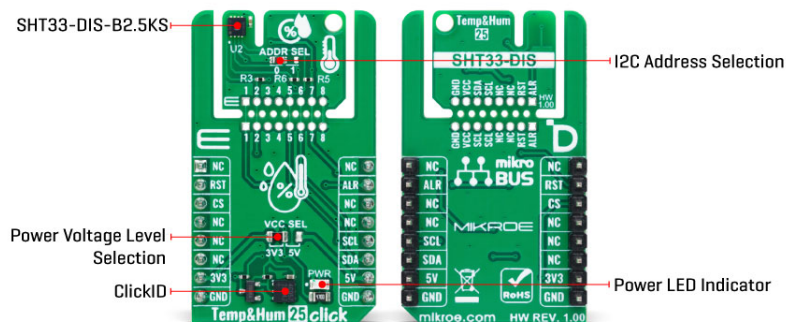
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Each SHT33 sensor is uniquely identifiable by its serial number and comes with an ISO17025-certified calibration certificate for temperature measurements. The SHT33-DIS-B2.5KS operates within a range of 0-100% RH and -40 to +125°C, with optimal performance achieved within the recommended temperature and humidity range of 5°C-60°C and 20%RH-80%RH, respectively. While long-term exposure to conditions outside these normal ranges, particularly high humidity, may temporarily offset the relative humidity signal, the sensor will re-calibrate itself upon returning to normal conditions. However, prolonged exposure to extreme environments can accelerate sensor aging. Additional notable features include its full functionality in condensing environments and true NIST-traceability, ensuring reliable and accurate measurements in various conditions.

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 SHT33-DIS-B2.5KS 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.

Temp&Hum 25 Click uses a standard 2-Wire I2C interface to communicate with the host MCU with fast-mode support and frequencies up to 1MHz. In addition to I2C pins, the device allows the selection of I2C addresses between 0x44 and 0x45 via an SMD jumper marked as ADDR SEL (0 set by default). The SHT33-DIS-B2.5KS can be reset via the RST pin of the mikroBUS™ socket, through a general call, or software as a soft reset. Resetting over the RST pin or through a general call (according to I2C specifications) achieves a full reset, while with the soft reset, the sensor resets the system controller and reloads calibration data from memory. In addition, this Click board™ comes with an additional interrupt alert signal, routed on the ALR pin of the mikroBUS™ socket, to provide a notification of ambient temperature and relative humidity measurements that violate programmed thresholds.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. Also, this Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used as a reference for further development.

## Click Snap

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**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 portable electronics and industrial, consumer, and environmental applications
On-board modules	SHT33-DIS-B2.5KS - third-generation relative humidity and temperature sensor from Sensirion
Key Features	High accuracy and reliability, ISO17025-certified calibration, CMOSens® technology for enhanced performance, true NIST-traceability, 2-Wire I2C interface with fast-mode support and selectable addresses, operates with both 3.3V and 5V logic levels, additional interrupt alert and reset options, Click Snap feature for flexible implementation, and more
Interface	I2C
Feature	Click Snap, ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V

## Pinout diagram

This table shows how the pinout on Temp&Hum 25 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
Reset	<b>RST</b>	2	RST	INT	15	<b>ALR</b>	Alert Interrupt
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	<b>5V</b>	Power Supply
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

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JP1	ADDR SEL	Left	I2C Address Selection 0/1: Left position 0, Right position 1
JP2	VCC SEL	Left	Power Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V

## Temp&Hum 25 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Operating Temperature Range	-40	-	+125	°C
Temperature Accuracy	-	±0.48	-	°C
Temperature Resolution	-	0.01	-	°C
Operating Humidity Range	0	-	100	%RH
Humidity Accuracy	-	±2	-	%RH
Humidity Resolution	-	0.01	-	%RH

## Software Support

We provide a library for the TempHum 25 Click as well as a demo application (example), developed using MIKROE [compilers](#). The demo can run on all the main MIKROE [development boards](#).

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 TempHum 25 Click driver.

### Key functions

- `temphum25_read_serial_num` This function reads the 4-bytes unique serial number by using I2C serial interface.
- `temphum25_start_measurement` This function starts the measurement by sending the selected measurement command.
- `temphum25_read_measurement` This function reads the temperature and humidity measurements results.

## Example Description

This example demonstrates the use of TempHum 25 Click board™ by reading the temperature and humidity data.

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](#).

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Other MIKROE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.TempHum25

## 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](#)

[Click boards™](#)

[ClickID](#)

## Downloads

[Temp&Hum 25 click example on Libstock](#)

[Temp&Hum 25 click 2D and 3D files v100](#)

[SHT33-DIS-B2.5KS datasheet](#)

[Temp&Hum 25 click schematic v100](#)

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