

SHT Click



PID: MIKROE-2101

SHT Click is a compact add-on board for accuracy, high reliability, and long-term stability in humidity and temperature measurements. This board features the SHT31-DIS, a humidity and temperature sensor from [Sensirion](#). Compared to its predecessor (SHT11), SHT Click has increased reliability and enhanced signal processing features with a high signal-to-noise ratio. The SHT31-DIS can measure the relative humidity in the range from 0 up to 100% with a typical accuracy of $\pm 2\%$ and temperature from -40 up to 90°C with a typical accuracy of $\pm 0.3^{\circ}\text{C}$. This Click board™ makes the perfect solution for developing humidity and thermal management of portable electronics and industrial, consumer, and environmental applications.

SHT Click is supported by a [mikroSDK](#) compliant library, which includes functions that simplify software development. This [Click board™](#) comes as a fully tested product, ready to be used on a system equipped with the [mikroBUS™](#) socket.

How does it work?

SHT Click is based on the SHT31-DIS, a humidity and temperature sensor from Sensirion. The SHT31-DIS is a robust and reliable sensor, and even when exposed to conditions outside its normal range, it can recalibrate itself once conditions stabilize. The sensor shows the best performance when operated within recommended normal temperature and humidity range of 5°C up to 60°C and 20%RH up to 80%RH, respectively. Long-term exposure to conditions outside the normal range, especially at high humidity, may temporarily offset the RH signal. After returning to the normal temperature and humidity range, the sensor will slowly return to a calibration state by itself. Also, note that prolonged exposure to extreme conditions may accelerate aging.

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ISO 27001: 2013 certification of informational security management system.
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ISO 9001: 2015 certification of quality management system (QMS).

The SHT Click communicates with the host MCU using an I2C interface over the mikroBUS™ socket, with communication speeds of up to 1MHz. This Click board™ allows the selection of one of two available I2C addresses via the ADDR jumper, where I2C address 0 is selected by default. To reset the SHT31-DIS sensor, there is an RST pin with an active LOW state. The SHT31-DIS also features alert functions and can send interrupt signals over the INT pin of the mikroBUS™ socket. The output of this pin depends on the RH/T reading relative to programmable limits.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the PWR SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the 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.

Specifications

Type	Temperature & humidity
Applications	Can be used for the development of humidity and thermal management of portable electronics and industrial, consumer, and environmental applications
On-board modules	SHT31-DIS - humidity and temperature sensor from Sensirion
Key Features	Fully calibrated, linearized and temperature compensated digital output, high speed I2C interface, high performance, very fast Start-up and measurement time, high accuracy and reliability, and more
Interface	I2C
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on SHT 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	RST	2	RST	INT	15	INT	Alert Interrupt
	NC	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	5V	Power Supply

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Ground	GND	8	GND	GND	9	GND	Ground
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Onboard settings and indicators

Label	Name	Default	Description
-	PWR	-	Power LED Indicator
-	PWR SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V
-	ADDR	Left	I2C Address Selection 0/1: Left position 0, Right position 1

Software Support

We provide a library for the SHT 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 SHT Click driver.

Key functions

- Returns temperature measurement in single shot mode.
- Returns humidity measurement in single shot mode.
- Sets the heater state.

Example Description

This application enables usage of the temperature and humidity sensor.

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.Sht

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

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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™](#)

Downloads

[SHT click example on Libstock](#)

[SHT click 2D and 3D files](#)

[SHT click schematic](#)

[SHT31-DIS datasheet](#)

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