

## DHT22 2 click

PID: MIKROE-2818

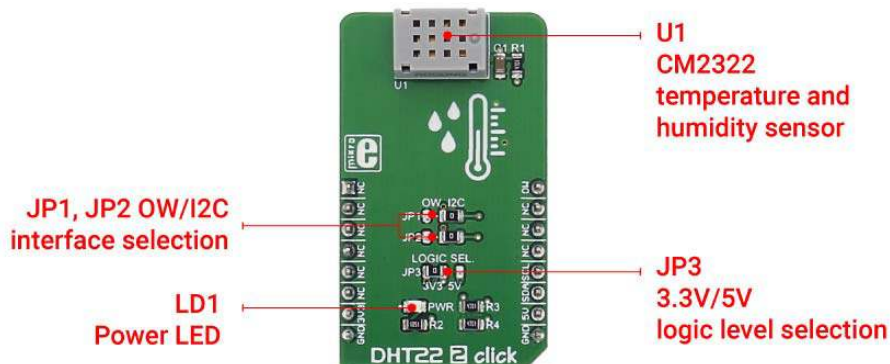
Weight: 25 g

**DHT22 2 click** is used for measuring the environmental temperature and relative humidity. It uses the CM2322 sensor, with very accurate thermal and humidity measuring capabilities. It can use either 1-Wire or I2C protocol to communicate with the integrated circuit.

Attributes like the ultra-small size, low power consumption, data signal transmission distance up to 20 meters, make this sensor the perfect choice for all kinds of applications that require measurement of the temperature and humidity.

How does the click work?

The sensor used on this click is CM2322. This sensor contains humidity and temperature measurement elements, compensated and calibrated in the accurate calibration chamber. The calibration coefficient is saved in the OTP memory of an integrated MCU. The integrated MCU also provides I2C or 1-Wire interface, selectable by the onboard SMD jumper selectors. The operating voltage can also be selected by the onboard SMD jumper.



Typical temperature accuracy is  $\pm 0.3^{\circ}\text{C}$ , while relative humidity accuracy is 2% RH, with the resolution of 0.1 for both measured properties.


I2C/1-Wire interface is used to communicate with the host MCU, sending the measurement data every 2 seconds. Proprietary data collecting techniques are used to average the sampled values, after which the result is sent via the I2C/1-Wire bus.

## Specifications

Type	Temperature / Humidity
On-board modules	CM2322 sensor with very accurate thermal and humidity measuring capabilities
Key Features	Great measuring accuracy: $\pm 0.3^{\circ}\text{C}$ , $\pm 2\% \text{RH}$ at $25^{\circ}\text{C}$ , ultra-small size, low power consumption, signal transmission distance up to 20 meters.
Interface	1-wire, I2C
Input Voltage	3.3V or 5V
Click board size	M (42.9 x 25.4 mm)

## Pinout diagram

This table shows how the pinout on **DHT22 2 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	<b>OW</b>	1-wire
	NC	2	RST	INT	15	NC	
	NC	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

## DHT22 2 click maximum ratings

Description	Min	Typ	Max	Unit
Logic voltage level	3.3	5	5.5	V
SCL clock frequency			100	kHz
Measuring range (T)	-40		+80	°C
Measuring range (RH)	0%		99%	RH

## Onboard settings and indicators

Label	Name	Default	Description
JP1	OW/SCL	Right	Digital interface selection. Left position 1-Wire, right position I2C.
JP2	OW/SDA	Right	Digital interface selection. Left position 1-Wire, right position I2C.
JP3	LOGIC SEL	Left	Logic level voltage selection. Left position 3.3V, right position 5V.
PWR	Power LED	-	Power LED indicates that the click is powered on

## Software Support

We provide a library for the DHT22 2 click on our LibStock page, as well as a demo application (example), developed using MikroElektronika compilers. The demo can run on all the main MikroElektronika development boards.

### Library description

Library contains key functions used to read temperature and humidity data from the DHT22 2 click.

```
float DHT22_2_getTemperature() ; - Function for reading temperature from sensor
```

```
float DHT22_2_getHumidity() - Function for reading humidity from sensor
```

### Examples Description

The example uses the library functions to read the temperature and humidity from the sensor and sends the data to the user, via the UART interface. The two functions use I2C interface to communicate with the MCU. Both of these functions return data in floating format, which only needs to be converted to a string with the compiler function `FloatToString`, before it is sent to the UART module. After that, the temperature and the humidity data can be viewed using the UART terminal.

```
void applicationTask()
{
    temp = DHT22_2_getTemperature();
    humidity = DHT22_2_getHumidity();
    FloatToStr(temp, output);
    UART1_Write_Text("Temperature: ");
    UART1_Write_Text(output);
    UART1_Write_Text("°C");
    UART1_Write(13);
    UART1_Write(10);
    UART1_Write_Text("Humidity: ");
    FloatToStr(humidity, output);
    UART1_Write_Text(output);
    UART1_Write_Text("%");
    UART1_Write(13);
    UART1_Write(10);
    Delay_ms(1000);
}
```

The full application code, and ready to use projects can be found on our LibStock page.

Other mikroE Libraries used in the example:

- UART
- I2C

### **Additional notes and information**

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. The terminal available in all MikroElektronika compilers, or any other terminal application of your choice, can be used to read the message.