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# 1-Wire I2C click

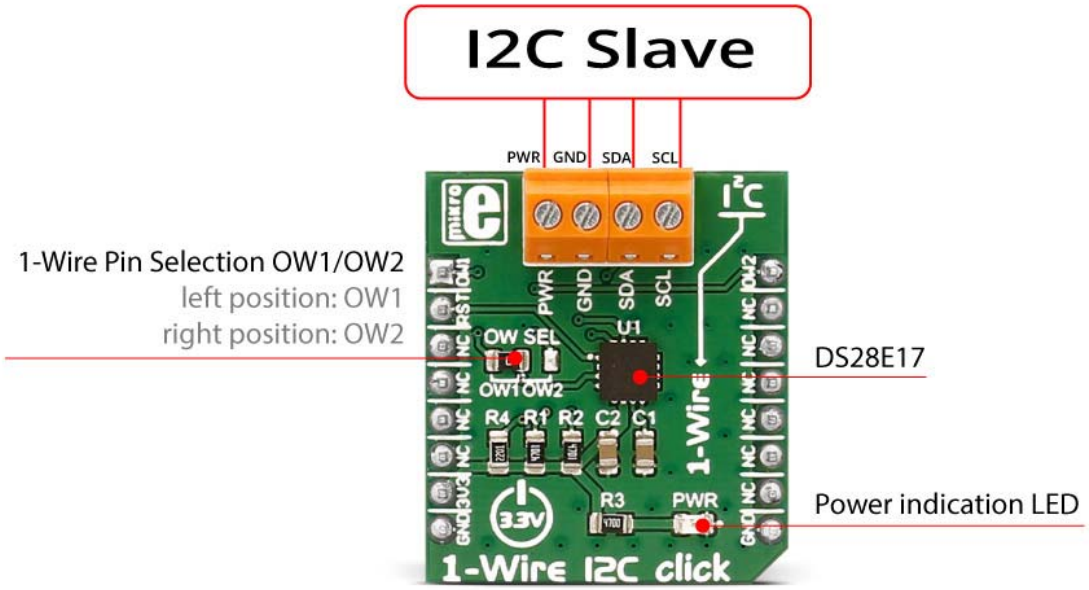
PID: MIKROE-2750


**1-Wire I2C click** carries DS28E17 1-Wire-to-I2C master bridge from Maxim Integrated. The click runs on a 3.3V power supply.

It communicates with the target microcontroller over 1-Wire® protocol, using the following pins on the mikroBUS™ line: AN, PWM, RST.

## How the click works

There are two on-board screw terminals used for connecting SCL, SDA, Vcc and GND of the I2C slave. After that, you are able to communicate with that slave through the onboard DS28E17 MCU.




## DS28E17 features

The DS28E17 is a 1-Wire slave to I2C master bridge device that interfaces directly to I2C slaves at standard (100kHz max) or fast (400kHz max). Data transfers serially through the **1-Wire® protocol**, which requires only a single data lead and a ground return. Every DS28E17 is guaranteed to have a unique 64-bit ROM registration number that serves as a node address in the 1-Wire network.

## Specifications

| | |
|---|---|
| Type | 1-wire |
| Applications | 1-Wire I2C click can be used to extend the length of I2C lines by converting I2C to 1-wire |
| On-board modules | DS28E17 1-Wire-to-I2C master bridge from Maxim Integrated |
| Interface | 1-wire,GPIO |
| Input Voltage | 3.3V |
| Click board size | S (28.6 x 25.4 mm) |

## Pinout diagram

This table shows how the pinout on **1-Wire I2C click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

| Notes | Pin | mikroBUS | | | | Pin | Notes |
|---|---|---|---|---|---|---|---|
| 1-Wire 1st pin | **OW1** | 1 | AN | PWM | 16 | **OW2** | 1-Wire 2nd pin |
| Reset pin | **RST** | 2 | RST | INT | 15 | NC | |
| | NC | 3 | CS | TX | 14 | NC | |
| | NC | 4 | SCK | RX | 13 | NC | |
| | NC | 5 | MISO | SCL | 12 | NC | |
| | NC | 6 | MOSI | SDA | 11 | NC | |
| Power supply | **+3.3V** | 7 | 3.3V | 5V | 10 | NC | |
| Ground | **GND** | 8 | GND | GND | 9 | **GND** | Ground |

## Programming

Code examples for 1-Wire I2C click, written for MikroElektronika hardware and compilers are available on Libstock.

### *Code snippet*

The following code snippet shows 1-Wire I2C click communication with the Thermo 4 click. It uses skipRom, writeI2C, and readI2C commands to read the temperature data from the sensor, and displays it back via UART output.

```
01 void One_Wire_I2C_Task()
02 {
03     char uartText [20];
04     char IWireData [20];
05
06    IWireData [0] = 0x00;   //Thermo 4 temperature register address
07
08    OWI2C_skipRom ();
09     OWI2C_writeI2C ( OWI2C_WRITE_NORMAL_NOSTOP, 0x48, 1, &IWireData);
//0x48 is unshifted I2C address of Thermo 4 click
10     OWI2C_skipRom ();
11     OWI2C_readI2C ( 0x48, 2, &IWireData);
12
13    UART_Write (13);
14     UART_Write (10);
15     UART_Write_Text("Current temperature is: ");
16     ByteToStr(IWireData[0], uartText);
17     UART_Write_Text(uartText);
18
19    Delay_ms (2000);
20 }
```