

1-Wire I2C click

PID: MIKROE-2750

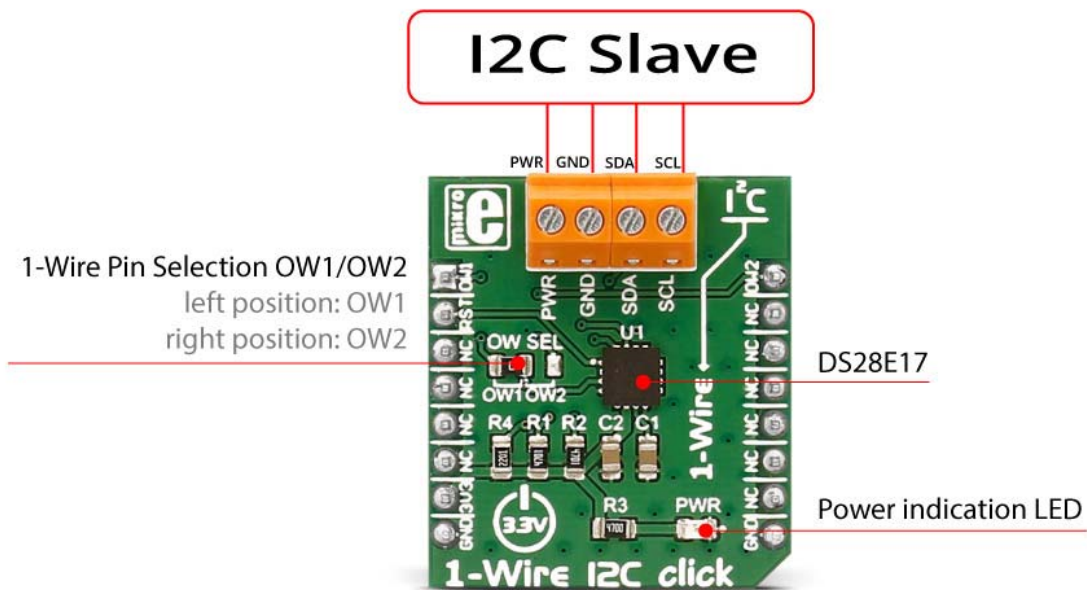


1-Wire I2C click carries DS28E17 1-Wire-to-I2C master bridge from Maxim Integrated. The click runs on a 3.3V power supply.

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	 mikro™ BUS				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 }

```