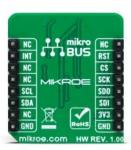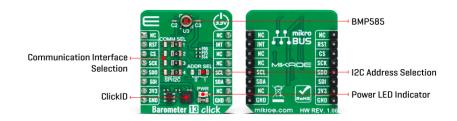MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
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Barometer 13 Click

PID: MIKROE-5921

Barometer 13 Click is a compact add-on board that measures air pressure in a specific environment. This board features the BMP585, a barometric pressure sensor from Bosch Sensortec. It has a nominal operating pressure range of 30 up to 125kPa and a temperature operating range from -40 to +85°C. The sensor provides true absolute pressure and temperature readings due to on-chip linearization and temperature compensation. This Click board™ makes the perfect solution for the development of handsets, portable devices, home weather stations, virtual and augmented reality devices, and more.

Barometer 13 Click is fully compatible with the mikroBUS™ socket and can be used on any host system supporting the mikroBUS™ standard. It comes with the ;mikroSDK open-source libraries, offering unparalleled flexibility for evaluation and customization. What sets this Click board™ apart is the groundbreaking ClickID feature, enabling your host system to seamlessly and automatically detect and identify this add-on board.

How does it work?

Barometer 13 Click is based on the BMP585, a barometric pressure sensor from Bosch Sensortec. It consists of a pressure-sensitive MEMS sensor element and an integrated circuit that drives and reads out the sensor element. The on-chip FIFO buffer can hold up to 32 pressure samples with an absolute pressure accuracy of ±30Pa. The sensor itself can work in normal, forced, and continuous modes, while in standby mode, no measurements are performed, and power consumption is at a minimum. There is also a deep standby mode with further reduced power consumption. The BMP585 has a built-in dedicated IIR filter that can reduce noise caused by ambient disturbances, such as an open window, door, and more.

Barometer 13 Click can use a standard 2-wire I2C interface to communicate with the host MCU, with a clock frequency of up to 1MHz. The I2C address can be selected over the ADDR SEL jumper. You can also use a standard 4-wire SPI interface for the same purpose, with a clock frequency of up to 12MHz. The selection can be made over the COMM SEL jumpers. The BMP585 provides an interrupt functionality, which allows it to signal certain events to the host processor over the INT pin.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. Also, it comes equipped with a library containing functions and an example code that can be used as a reference for further development.

Specifications

Type	Pressure
Applications	Can be used for the development of handsets, portable devices, home weather stations, virtual and augmented reality devices, and more
On-board modules	BMP585 - barometric pressure sensor from Bosch Sensortec
Key Features	Pressure and temperature sensor, ultra-low noise and current consumption, high accuracy, wide output data rates depending on the mode of operation, programmable low-pass filter, on-chip FIFO buffer for up to 32 pressure samples, and more
Interface	I2C,SPI
Feature	ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V

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Pinout diagram

This table shows how the pinout on Barometer 13 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikro™ BUS			Pin	Notes
	NC	1	AN	PWM	16	NC	
ID SEL	**RST**	2	RST	INT	15	**INT**	Interrupt
SPI Select / ID COMM	**CS**	3	CS	RX	14	NC	
SPI Clock	**SCK**	4	SCK	TX	13	NC	
SPI Data OUT	**SDO**	5	MISO	SCL	12	**SCL**	I2C Clock
SPI Data IN	**SDI**	6	MOSI	SDA	11	**SDA**	I2C Data
Power Supply	**3.3V**	7	3.3V	5V	10	NC	
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1-JP4	COMM SEL	Right	Communication Interface Selection SPI/I2C: Left position SPI, Right position I2C
JP5	ADDR SEL	Right	I2C Address Selection 0/1: Left position 0, Right position 1

Barometer 13 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Pressure Operating Range	30	-	125	kPa
Temperature Operating Range	-5	-	+65	°C
Absolute Pressure Accuracy	-	±30	-	Pa

Software Support

We provide a library for the Barometer 13 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 Barometer 13 Click driver.

Key functions

- barometer13_get_measurement_data Barometer 13 get the measurement data

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function.

- barometer13_set_odr Barometer 13 set the output data rate function.

- barometer13_set_int_cfg Barometer 13 set the interrupt config function.

Example Description

This example demonstrates the use of Barometer 13 Click board™ by reading and displaying the pressure and temperature measurements.

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.Barometer13

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

Barometer 13 click example on Libstock

Barometer 13 click 2D and 3D files

Barometer 13 click schematic

BMP585 datasheet