

Pressure 22 Click



PID: MIKROE-5774

Pressure 22 Click is a compact add-on board that contains a board-mount pressure sensor. This board features the [MS5839-02BA](#), an ultra-compact chlorine-resistant digital pressure and temperature sensor from [TE Connectivity](#). The sensor is a small digital altimeter operating from 300 up to 1200mbar, optimized for applications where chlorine and saline are present. The sensor is filled with gel, which makes it robust, and enables it to work in harsh environments. This Click board™ makes the perfect solution for the development of shallow diving computers, swim watches, fitness trackers, underwater equipment, diving equipment and computers, and more.

Pressure 22 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?

Pressure 22 Click is based on the MS5839-02BA, an ultra-compact chlorine-resistant digital pressure and temperature sensor from TE Connectivity. It has a primary pressure operating range of 300 up to 1200mbar. The gel-filled design offers this sensor advanced water resistance, thus allowing it to measure extended pressure range from 10 up to 2000mbar, hence the 02BA in the marking. The overpressure comes at 10 bar. The sensor delivers a decent pressure sensing accuracy of ± 0.5 mbar. In addition to pressure, this sensor can measure the temperature in a range of -20 up to 85°C with a temperature sensing accuracy of ± 2 °C.

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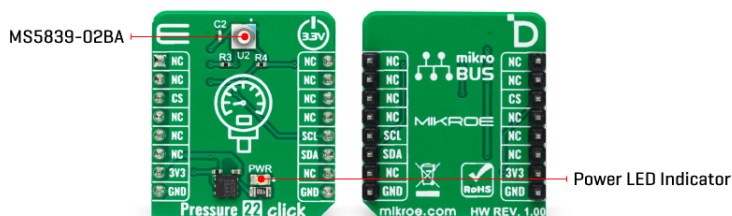
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
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ISO 9001: 2015 certification of quality management system (QMS).



It integrates the 24-bit sigma-delta analog-to-digital converter for both the pressure and the temperature sensors. The MS5839-02BA sensor consists of a piezo-resistive sensor and a sensor interface integrated circuit. It converts the sensor's uncompensated analog output value voltage to a 24-bit digital value. The sensor is factory calibrated at two temperature and pressure points, where as a result, six coefficients necessary to compensate for process variations and temperature variations are calculated and stored in the 112-bit PROM of the sensor.

Pressure 22 Click uses a standard 2-Wire I2C interface to communicate with the host MCU, supporting clock speeds up to 400KHz. The reset is only available over the I2C interface, as well as the read from the PROM.

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. 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 shallow diving computers, swim watches, fitness trackers, underwater equipment, diving equipment and computers, and more
On-board modules	MS5839-02BA - chlorine-resistant digital pressure and temperature sensor from TE Connectivity
Key Features	Low power consumption, chlorine, and saline resistant, water-resistant sealing, operating in a large pressure range, up to 10bar for overpressure, the robust gel-filled design allows operation in harsh environments, and more
Interface	I2C
ClickID	Yes

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Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on Pressure 22 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS™				Pin	Notes
	NC	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	NC	
	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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator

Pressure 22 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Operating Pressure Range	300	-	1200	mbar
Relative Pressure Accuracy	-0.5	-	0.5	mbar
Relative Temperature Accuracy	-2	-	2	°C
Resolution	-	24	-	bit

Software Support

We provide a library for the Pressure 22 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 Pressure 22 Click driver.

Key functions

- `pressure22_get_measurement_data` Pressure 22 get the measurement data function.

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- pressure22_get_calibration_data Pressure 22 get the calibration data function.
- pressure22_get_adc_data Pressure 22 get the ADC data function.

Example Description

This library contains API for Pressure 22 Click driver. The demo application reads and calculate pressure and temperature data.

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.Pressure22

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

[Pressure 22 click example on Libstock](#)

[MS5839-02BA36 datasheet](#)

[Pressure 22 click 2D and 3D files](#)

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[Pressure 22 click schematic](#)

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