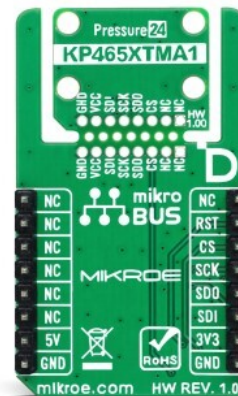
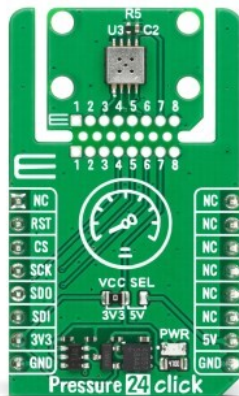


Pressure 24 Click



PID: MIKROE-6892

Pressure 24 Click is a compact add-on board for absolute air pressure measurement in automotive, industrial, and environmental monitoring systems. It is based on the [KP465](#), a high-performance digital absolute pressure sensor from [Infineon](#). It features a capacitive pressure sensing principle with monolithically integrated signal conditioning, delivering a pressure measurement range from 60kPa to 320kPa with an accuracy of ± 3.0 kPa, along with automotive-grade qualification. Additional features include a dedicated Power-Down Mode for reduced power consumption, built-in diagnostic functions for sensor cell and signal path testing, SPI interface, and the Click Snap format that allows flexible mechanical implementation and autonomous operation. This board is ideal for applications such as automotive barometric air pressure sensing, manifold air flow monitoring, battery management systems, seat comfort systems, industrial control, weather stations, and altimeters.

For more information about **Pressure 24 Click** visit the official [product page](#).

How does it work?

Pressure 24 Click is based on the KP465, a high-performance digital pressure sensor from Infineon, designed for absolute air pressure measurement in automotive, industrial, and environmental monitoring systems. This miniaturized, high-accuracy absolute pressure sensor operates on a capacitive sensing principle and is manufactured using surface micromachining technology with a monolithically integrated signal conditioning circuit, enabling digital output across a wide operating range. With a pressure measurement range from 60kPa to 320kPa and a high accuracy of ± 3.0 kPa, along with automotive qualification, Pressure 24 Click is well suited for applications such as automotive barometric air pressure sensing, manifold air flow monitoring, battery management systems, seat comfort systems, industrial control equipment,

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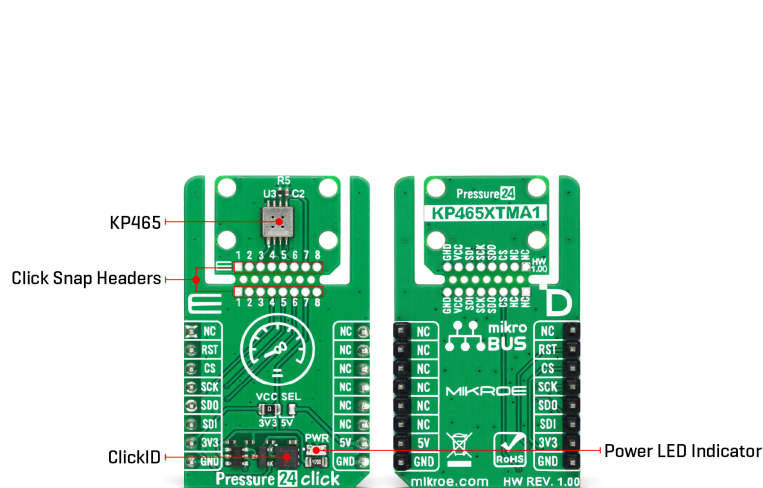


ISO 27001: 2013 certification of informational security management system.
 ISO 14001: 2015 certification of environmental management system.
 OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).

weather stations, and altimeters.



This Click board™ is designed in a unique format supporting the newly introduced MIKROE feature called "Click Snap." Unlike the standardized version of Click boards, this feature allows the main sensor/IC/module area to become movable by breaking the PCB, opening many new possibilities for implementation. Thanks to the Snap feature, the KP465 can operate autonomously by accessing its signals directly on the pins marked 1-8. Additionally, the Snap part includes a specified and fixed screw hole position, enabling users to secure the Snap board in their desired location.

The KP465 converts physical pressure into a digital value and communicates the measured data via an SPI interface, allowing easy integration with a wide range of microcontrollers. In addition to pressure measurement, an on-chip temperature sensor is included, with temperature data also accessible through SPI commands, enabling temperature-aware compensation and system diagnostics. The device supports a dedicated Power-Down Mode that significantly reduces power consumption when measurements are not required, making it suitable for energy-sensitive applications. Integrated diagnostic functions provide advanced reliability features by enabling testing of both the sensor cells and the complete signal path through SPI-triggered diagnostic commands.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. Also, this Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used as a reference for further development.

Click Snap

Click Snap is an innovative feature of our standardized Click add-on boards, designed to bring greater flexibility and optimize your prototypes. By simply snapping the PCB along predefined lines, you can easily detach the main sensor/IC/module area, reducing the overall size, weight, and power consumption - ideal for the final phase of prototyping. For more details about Click Snap, visit the [official page](#) dedicated to this feature.

Specifications

Type	Pressure
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Applications	Ideal for applications such as automotive barometric air pressure sensing, manifold air flow monitoring, battery management systems, seat comfort systems, industrial control, weather stations, and altimeters
On-board modules	KP465 - air pressure sensor for fuel-cell and industry systems from Infineon
Key Features	High-accuracy absolute air pressure measurement based on a capacitive sensing principle, digital SPI interface for pressure and temperature data transmission, monolithically integrated signal conditioning circuitry, Power-Down Mode for reduced power consumption, built-in diagnostic functions for sensor cell and signal path testing, automotive-qualified sensor design, Click Snap format, and more
Interface	SPI
Feature	Click Snap, ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on Pressure 24 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	
ID SEL	RST	2	RST	INT	15	NC	
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	NC	
SPI Data IN	SDI	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	VCC SEL	Left	Power Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V

Pressure 24 Click electrical specifications

Description	Min	Typ	Max	Unit
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Supply Voltage	3.3	-	5	V
Pressure Range	60	-	320	kPa
Accuracy	-3	-	+3	kPa

Software Support

[Pressure 24 Click](#) demo application is developed using the [NECTO Studio](#), ensuring compatibility with [mikroSDK](#)'s open-source libraries and tools. Designed for plug-and-play implementation and testing, the demo is fully compatible with all development, starter, and mikromedia boards featuring a [mikroBUS™](#) socket.

Example Description

This example demonstrates the use of the Pressure 24 Click board for measuring pressure and temperature data. The application reads sensor values via the SPI interface and displays the measured results on the serial terminal.

Key Functions

- `pressure24_cfg_setup` This function initializes Click configuration structure to initial values.
- `pressure24_init` This function initializes all necessary pins and peripherals used for this Click board.
- `pressure24_get_identifier` This function triggers an identifier acquisition and reads the identifier response word.
- `pressure24_get_pressure` This function triggers a 14-bit pressure acquisition and calculates the result in millibars.
- `pressure24_get_temperature` This function triggers a 14-bit temperature acquisition and calculates the result in degrees Celsius.

Application Init

Initializes the logger and Pressure 24 Click driver and verifies the device identifier.

Application Task

Periodically reads pressure and temperature values from the sensor and logs the results to the serial terminal.

Application Output

This Click board can be interfaced and monitored in two ways:

- Application Output - Use the "Application Output" window in Debug mode for real-time data monitoring. Set it up properly by following [this tutorial](#).
- UART Terminal - Monitor data via the UART Terminal using a [USB to UART converter](#). For detailed instructions, check out [this tutorial](#).

Additional Notes and Information

The complete application code and a ready-to-use project are available through the NECTO Studio Package Manager for direct installation in the [NECTO Studio](#). The application code can also be found on the MIKROE [GitHub](#) account.

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Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[Pressure 24 click example package](#)

[Pressure 24 click 2D and 3D files v100](#)

[KP465 datasheet](#)

[Pressure 24 click schematic v100](#)

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