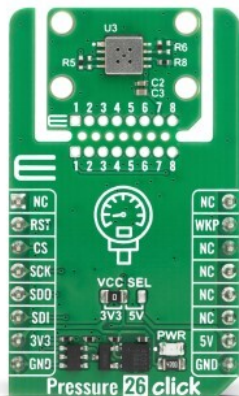


Pressure 26 Click



PID: MIKROE-6953

Pressure 26 Click is a compact add-on board designed for digital absolute pressure measurement in automotive, industrial, and environmental monitoring applications. It is based on the [KP467Q](#), a XENSIV™ digital absolute pressure sensor from [Infineon Technologies](#). The KP467Q uses a capacitive sensing principle with a monolithically integrated signal conditioning circuit, converting physical pressure into a 10-, 12-, or 14-bit digital value transmitted via an SPI interface. The sensor provides a pressure measurement range from 50 to 140kPa with an accuracy of -1 to +1kPa. In addition to pressure measurement, the device integrates an on-chip temperature sensor capable of delivering 10-, 12-, or 14-bit temperature data depending on the received SPI command. The sensor also features advanced power management including power-down and Low Power Monitoring (LPM) modes, integrated diagnostics triggered via SPI commands, and a wake-up interrupt signal for event-driven operation. This Click board™ is well suited for automotive battery monitoring systems, barometric pressure sensing, mass air flow systems, seat comfort systems, industrial control, weather stations, and altitude measurement applications.

For more information about **Pressure 26 Click** visit the official [product page](#).

How does it work?

Pressure 26 Click is based on the KP467Q, a XENSIV™ digital absolute pressure sensor from Infineon Technologies that uses a capacitive sensing principle combined with a monolithically integrated signal conditioning circuit. The sensor is surface micromachined and optimized for high precision and reliability, converting physical pressure into a digital value with selectable resolution of 10, 12, or 14 bits transmitted through a high-speed SPI interface. In addition to pressure sensing, the KP467Q integrates an on-chip temperature sensor that can deliver 10-,

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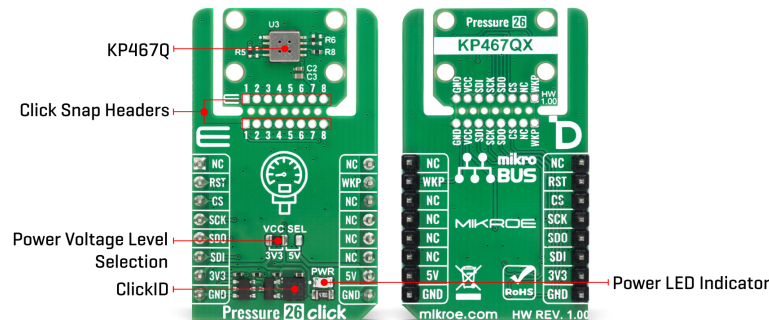


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12-, or 14-bit temperature data depending on the received SPI command, allowing the system to monitor environmental conditions and compensate measurements when required. The Pressure 26 Click is ideal for applications such as automotive battery monitoring systems optimized for thermal runaway detection, barometric air pressure sensing, mass air flow systems, seat comfort and climate control systems, industrial process control, weather monitoring stations, and altitude measurement devices.



The KP467Q incorporates advanced power management capabilities, including a dedicated power-down mode that minimizes energy consumption when measurements are not required, provides a pressure measurement range from 50 to 140kPa with an accuracy of -1 to +1kPa. Furthermore, it features a specialized Low Power Monitoring (LPM) mode designed for battery-powered systems that must continuously observe pressure changes while maintaining extremely low power consumption. This mode is particularly valuable in automotive battery monitoring systems, where the sensor can detect pressure pulses generated during thermal runaway events in lithium-based batteries, especially LFP battery technologies. To ensure operational reliability and safety in demanding environments, the sensor integrates built-in diagnostic functionality that can be triggered through SPI commands, enabling system-level health monitoring and fault detection without additional external components.

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 KP467Q 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 KP467Q communicates with the host processor via an SPI interface operating up to 5MHz. In addition to standard interface signals, the board also uses WKP pin as an MCU wake up interrupt. If a delta pressure threshold is reached a wake-up signal will be sent via the WKP pin to wake-up the MCU and react accordingly. The wake-up pulse on the WKP pin is also triggered at each power-up, after power-down/wake-up and in case of a detected diagnosis error during LPM in order to avoid an ignorance about the current operation mode and reduce the probability of a wrong or no wake-up signal.

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

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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
Applications	Ideal for automotive battery monitoring systems, barometric pressure sensing, mass air flow systems, seat comfort systems, industrial control, weather stations, and altitude measurement applications
On-board modules	KP467Q - XENSIV™ digital absolute pressure sensor from Infineon Technology
Key Features	High-precision capacitive absolute pressure sensing, selectable 10-, 12-, or 14-bit pressure measurement resolution, integrated on-chip temperature sensor, high-speed SPI interface communication, Low Power Monitoring (LPM) mode for ultra-low power pressure pulse detection, integrated diagnostic functionality for sensor cell and signal path verification via SPI commands, wake-up interrupt for event-driven MCU activation, Click Snap feature, 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 26 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	WKP	Wake Up Interrupt
SPI Select / ID COMM	CS	3	CS	RX	14	NC	

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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 26 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Pressure Range	50	-	140	kPa
Accuracy	-1	-	+1	kPa
Operating Ambient Temperature Range	-40	-	+105	°C

Software Support

[Pressure 26 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 26 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

- `pressure26_cfg_setup` This function initializes Click configuration structure to initial values.
- `pressure26_init` This function initializes all necessary pins and peripherals used for this Click board.
- `pressure26_send_cmd` This function sends a command over the SPI interface, reads the previous response word and validates the odd parity bit.
- `pressure26_get_pressure` This function triggers a 14-bit pressure acquisition and calculates the result in millibars.
- `pressure26_get_temperature` This function triggers a 14-bit temperature acquisition and calculates the result in degrees Celsius.
- `pressure26_get_identifier` This function triggers an identifier acquisition and reads the identifier response word.

Application Init

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Initializes the logger and Pressure 26 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.

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[Pressure 26 click example package](#)

[Pressure 26 click 2D and 3D files v100](#)

[Pressure 26 click schematic v100](#)

[KP467Q datasheet](#)

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