

Fingerprint 5 Click



PID: MIKROE-6787

Fingerprint 5 Click is a compact add-on board that brings advanced biometric identification into embedded applications, allowing fast and secure fingerprint capture, matching, and verification without the need for external processing. It is based on the FPC2530 ([100026222](#)) fingerprint sensor from [Fingerprints](#), which integrates a complete biometric system with onboard authentication software and internal flash memory for automatic fingerprint template creation and encrypted storage. The board is designed in the unique Click Snap format, enabling the main module to be detached and used independently with direct access to its signals. Fingerprint 5 Click is ideal for access control systems, door locks, crypto wallets, FIDO authenticators, secure tokens, digital access devices, and time and attendance solutions.

For more information about **Fingerprint 5 Click** visit the official [product page](#).

How does it work?

Fingerprint 5 Click is based on the FPC2530 (100026222), a fingerprint sensor from Fingerprints that brings reliable biometric identification into embedded applications by using the advanced fingerprint recognition technology. This sensor provides a complete biometric system with onboard authentication software, enabling fast and accurate fingerprint capture, matching, and verification directly on the device without the need for external processing. The sensor automatically creates fingerprint templates that are securely stored in its internal flash memory, while encrypted template storage ensures data privacy and protection against unauthorized access.

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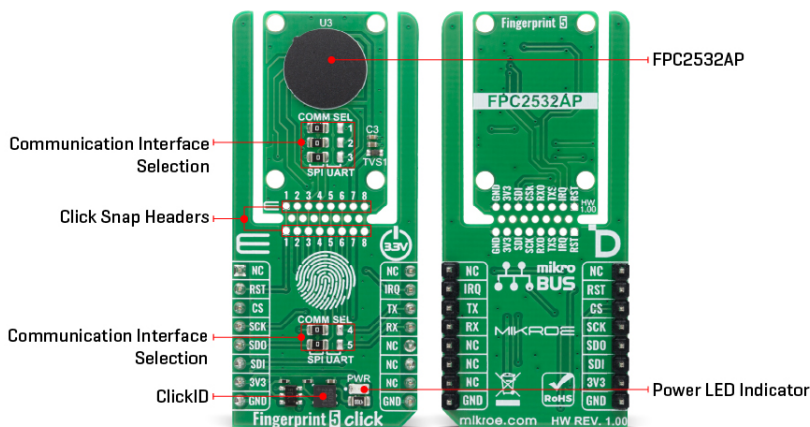
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ISO 27001: 2013 certification of informational security management system.
 ISO 14001: 2015 certification of environmental management system.
 OHSAS 18001: 2008 certification of occupational health and safety management system.



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



Designed with navigation support for intuitive operation, the FPC2530 is enhanced by its durable black coating and a built-in hidden discharge node (bezel), offering robust protection against electrostatic discharge, scratches, impacts, and everyday wear and tear. The Fingerprint 5 Click is an excellent choice for advanced biometric applications such as access control systems, door locks, crypto wallets, FIDO authenticators, secure tokens, digital access devices, as well as time and attendance systems where security, reliability, and long-term durability are essential.

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 up many new possibilities for implementation. Thanks to the Snap feature, the FPC2530 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.

This board supports communication with the host MCU through either SPI or UART interfaces, with SPI being the default option. The communication interface is selected by adjusting the COMM SEL jumper to the desired position. To enhance flexibility, particularly with the detachable Snap section of the Click Snap format, an additional COMM SEL jumpers are available. These jumpers function the same as the COMM SEL, allowing for independent communication interface selection when the Snap section is used independently. To ensure proper functionality, all COMM jumpers must be set to the same interface. In addition to the interface pins, the board also includes IRQ pin that serves as interrupt request in SPI interface or as host wake-up signal in both SPI and UART interfaces.

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 also comes equipped with a library containing functions and 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

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Snap, visit the [official page](#) dedicated to this feature.

Specifications

Type	Fingerprint
Applications	Ideal for access control systems, door locks, crypto wallets, FIDO authenticators, secure tokens, digital access devices, and time and attendance solutions
On-board modules	FPC2530 (100026222) - fingerprint sensor from Fingerprints
Key Features	Complete biometric system with onboard authentication software, automatic fingerprint template creation, encrypted template storage in internal flash memory, navigation support for intuitive operation, built-in hidden discharge node (bezel) for ESD and impact resistance, Click Snap format, SPI or UART interfaces, and more
Interface	SPI,UART
Feature	Click Snap,ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on Fingerprint 5 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	
Reset / ID SEL	RST	2	RST	INT	15	IRQ	Interrupt Request
SPI Select / ID COMM	CS	3	CS	RX	14	TX	UART TX
SPI Clock	SCK	4	SCK	TX	13	RX	UART RX
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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1-JP3	COMM SEL	Left	Snap-Side Communication Interface Selection SPI/UART: Left position

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			SPI, Right position UART
JP4-JP5	COMM SEL	Left	mikroBUS-Side Communication Interface Selection SPI/UART: Left position SPI, Right position UART

Fingerprint 5 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Pixel Resolution	-	8	-	bit
Spatial Resolution	-	508	-	dpi

Software Support

[Fingerprint 5 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 how to use the Fingerprint 5 Click board to enroll and identify fingerprints. The application cycles through several states: checking firmware readiness, reading version info, deleting existing templates, enrolling new fingerprints, and continuously identifying them.

Key Functions

- `fingerprint5_cfg_setup` This function initializes Click configuration structure to initial values.
- `fingerprint5_init` This function initializes all necessary pins and peripherals used for this Click board.
- `fingerprint5_enroll_finger` This function sends the enroll command for fingerprint registration.
- `fingerprint5_identify_finger` This function sends the identify command to compare the input fingerprint with existing templates.
- `fingerprint5_read_cmd` This function reads a response or event frame from the device.

Application Init

Initializes the logger and the Click board, resets the device and sets up the application state machine.

Application Task

Handles command processing and application state transitions, enabling fingerprint enrollment and identification.

Application Output

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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

[Fingerprint 5 click example package](#)

[Fingerprint 5 click 2D and 3D files v100](#)

[FPC2530 datasheet](#)

[Fingerprint 5 click schematic v100](#)

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