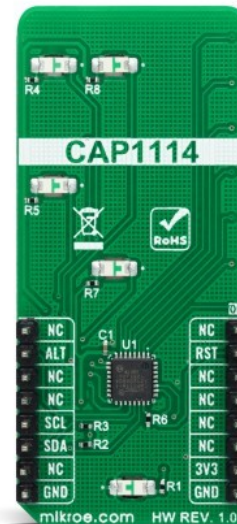


CapSense 2 Click



PID: MIKROE-4982

CapSense 2 Click is a compact add-on board that easily integrates projected capacitive touch into user's applications. This board features the CAP1114, a multi-channel capacitive touch sensor that takes human body capacitance as an input and directly provides the real-time sensor information via the I2C serial interface from Microchip. This board contains capacitive sensing elements, a 7-segment slider, two buttons, and four LED indicators that visually detect the activation on some of these parts. This Click board™ offers reliable and accurate sensing for any application that uses capacitive touch sensing functions.

CapSense 2 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?

CapSense 2 Click as its foundation uses the CAP1114, a multi-channel capacitive touch sensor from Microchip. The CAP1114 takes human body capacitance as an input and directly provides real-time sensor information via a serial interface. It also comes with programmable sensitivity for touch buttons and slider switch applications.

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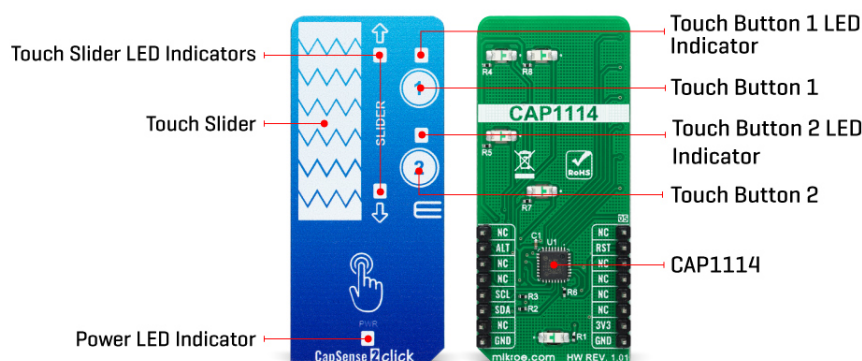
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The CAP1114 contains multiple power states, including several low-power operating states. It has four operational states: Fully Active, Sleep, Deep Sleep, and Inactive depending on the status of the SLEEP, DEACT, and DSLEEP register bits. When the device transitions between power states, previously detected touches (for deactivated channels) are cleared, and the status bits reset.

As mentioned earlier, this board contains a 7-segment capacitive sensing slider that can detect a slide in either the UP or DOWN direction, as well as two touch buttons. These pads are the only elements on the top side of the board, allowing the protective acrylic plexiglass layer placement. Each of these features has an LED indicator representing the activity in that field. If a touch event is detected on one of these onboard pads, the state of the corresponding LED will be changed, indicating an activated channel; more precisely, touch has been detected on that specific field.

CapSense 2 Click communicates with MCU using the standard I2C 2-Wire interface to read data and configure settings. It also possesses an additional alert interrupt signal, routed on the INT pin of the mikroBUS™ socket labeled as ALT, indicating when a specific interrupt event occurs (touch detection), and Reset pin routed to the RST pin of the mikroBUS™ socket used to hold all internal blocks of the CAP1114 in a reset state.

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. However, the Click board™ comes equipped with a library containing functions and an example code that can be used, as a reference, for further development.

Specifications

Type	Capacitive
Applications	Can be used for reliable and accurate sensing for any application that uses capacitive touch sensing functions
On-board modules	CAP1114 - multi-channel capacitive touch sensor from Microchip
Key Features	Slider with acceleration and position detection, programmable sensitivity, low power consumption, automatic recalibration, I2C

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	interface, two touch buttons, LED indicators, and more
Interface	I2C
ClickID	No
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 CapSense 2 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
Reset	RST	2	RST	INT	15	ALT	Interrupt
	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
LD2	-	-	Touch Button 1 LED Indicator
LD3	-	-	Touch Button 2 LED Indicator
LD4-LD5	-	-	Touch Slider LED Indicators

CapSense 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Operating Temperature Range	0	+25	+85	°C

Software Support

We provide a library for the CapSense 2 Click as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

Package can be downloaded/installed directly from NECTO Studio Package Manager(recommended way), downloaded from our [LibStock™](#) or found on [Mikroe github account](#).

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Library Description

This library contains API for CapSense 2 Click driver.

Key functions

- `capsense2_read_register` This function reads a data byte from the selected register by using I2C serial interface.
- `capsense2_get_alert_pin` This function returns the alert pin logic state.
- `capsense2_clear_interrupt` This function clears the INT bit of the main status register if the interrupt pin is asserted.

Example Description

This example demonstrates the use of CapSense 2 Click board™ by reading and displaying the sensor's events.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager(recommended way), downloaded from our [LibStock™](#) or found on [Mikroe github account](#).

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.CapSense2

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 MikroElektronika [compilers](#).

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MikroElektronika 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™](#)

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Downloads

[CapSense 2 click example on Libstock](#)

[CAP1114 datasheet](#)

[CapSense 2 click schematic](#)

[CapSense 2 click 2D and 3D files](#)

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