



## TOUCH

# Touch Capacitive Sensor

*Professional electronic component*

v1.0

2025-09-23

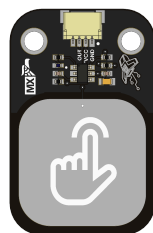
Rev. A

## PRODUCT OVERVIEW

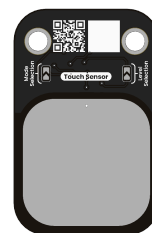
The UNIT Touch Capacitive Sensor transforms a simple touch into a precise digital signal—no buttons, no moving parts. Powered by the TTP223B capacitive sensing chip, this board continuously monitors its flat electrode pad and instantly reports “touch detected” via a clean HIGH logic output. Whether you’re building a sleek control panel, a wearable interface, or a touch-activated lamp, this sensor delivers reliable, debounce-free touch detection with minimal wiring and virtually zero power draw at rest.

## PRODUCT VIEWS

### TOP VIEW

*Component placement and connectors*

### BOTTOM VIEW

*Underside components and connections*

# KEY TECHNICAL SPECIFICATIONS

## CONNECTIVITY

Primary Interface: **GPIO (Interrupt)**  
Connector Type: **JST 4-pin 1.0mm**  
Logic Levels: **VCC-referenced (2V – 5.5V tolerant)**

## KEY FEATURES

- Touch-only sensing**  
No physical press required – reacts to proximity of a finger.


**Auto-calibration**  
Compensates for environmental changes and drift.

**On-board pull-up/down**  
Ensures clean digital output.

**JST PH-2.0 connector**  
Quick-disconnect cable interface.
- Fast response**  
< 80 ms touch detection time.

**Selectable modes**  
Momentary or toggle output (via solder-jumper on the board).

**Mounting holes**  
Two M3 screw holes for easy panel integration.

 **Key Applications**  
User interfaces for wearables and handheld devices, Touch-activated lamps, buzzers or relays, Capacitive keyboards and remote controls and more

## ADDITIONAL TECHNICAL INFORMATION

### OVERVIEW

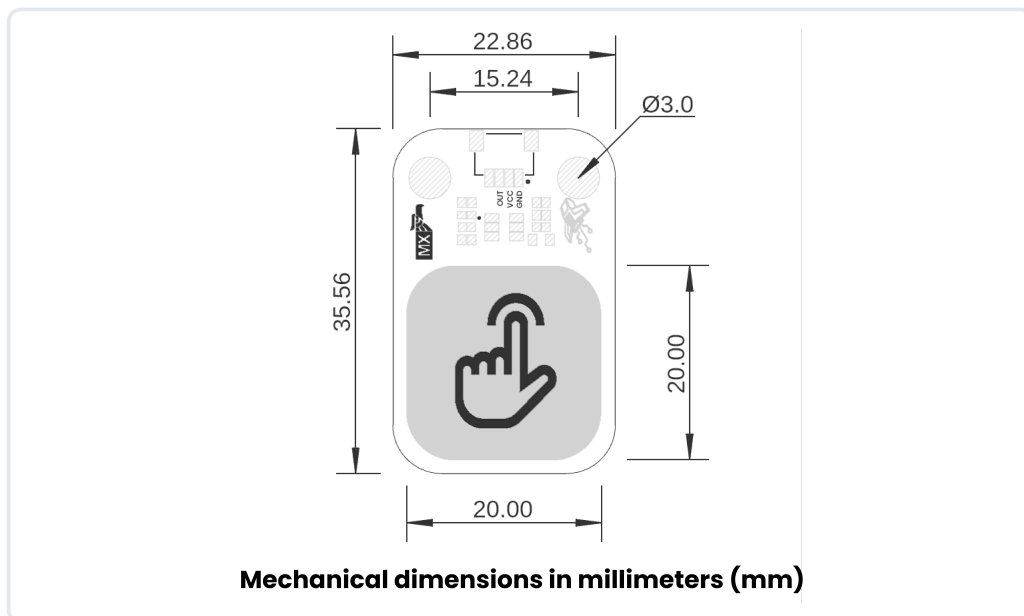
FEATURE	DESCRIPTION
Capacitive Sensing	Utilizes the TTP223B IC to detect changes in capacitance on the large silver touch pad.
Signal Processing	Internal auto-calibration and filtering circuitry remove noise and drift for reliable operation.
Digital Output	OUT pin goes HIGH when touch is detected (capacitance exceeds threshold); remains LOW otherwise.
Mode Selection	Solder jumper selects between Momentary mode (OUT is HIGH only while touched) and Toggle mode (OUT toggles state on each touch).

**MODE & LEVEL SELECTION**

MODE	LEVEL	TOG	AHLB	PAD Q (CMOS)	PAD OPDO (OPEN DRAIN)	BEHAVIOR
0	0	0	0	Active high	Open drain, active high	Momentary, single pulse
0	1	0	1	Active low	Open drain, active low	Momentary, inverted pulse
1	0	1	0	Toggle, power-on=0	Toggle, active high	Toggle, touch to change state
1	1	1	1	Toggle, power-on=1	Toggle, active low	Toggle, inverted

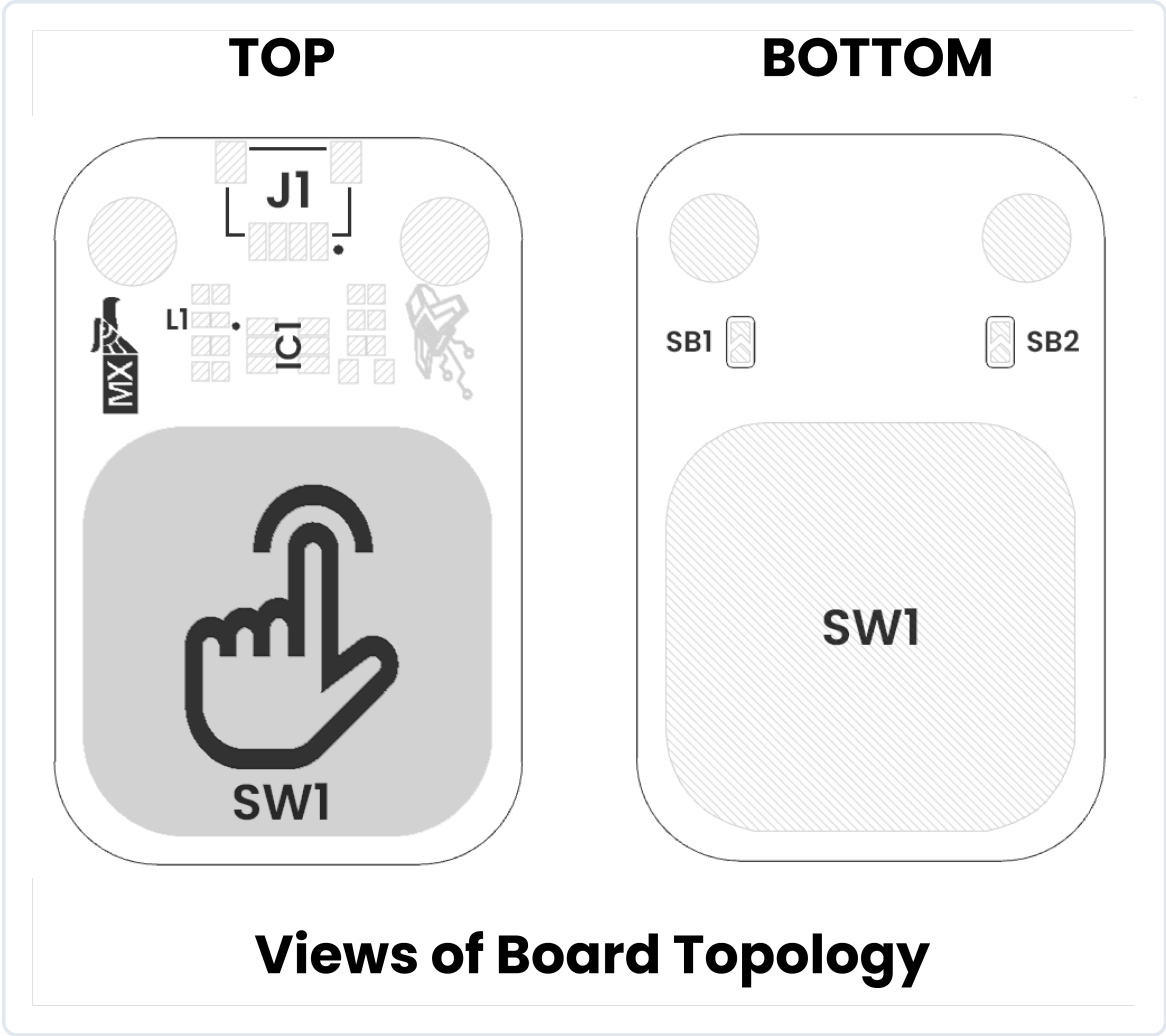
## HARDWARE DOCUMENTATION

## MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



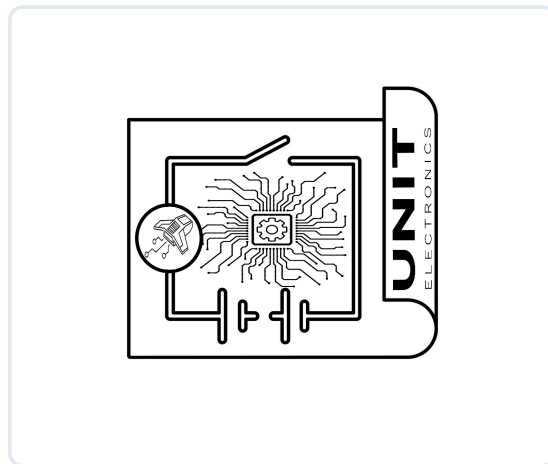
Connection topology and system integration diagram

[Click image to open in full size](#)

COMPONENT REFERENCE

REF.	DESCRIPTION
SW1	Capacitive Touch Button
L1	Built-In LED
IC1	TTP223-BA6-TD Touch Detector
J1	QWIIC Connector (JST 1 mm pitch) for I2C
SB1	Solder Bridge for Mode Selection
SB2	Solder Bridge for Logic Level Selector

## CIRCUIT SCHEMATIC



Complete circuit schematic showing all component connections

**[View Complete Schematic PDF](#)**

# PIN DESCRIPTION

*Detailed pin assignment and electrical specifications*

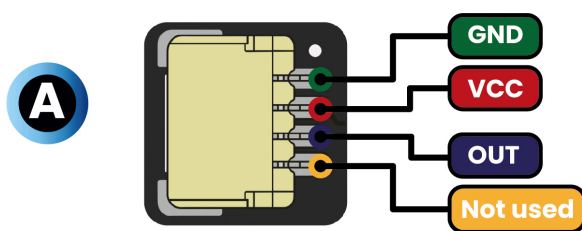
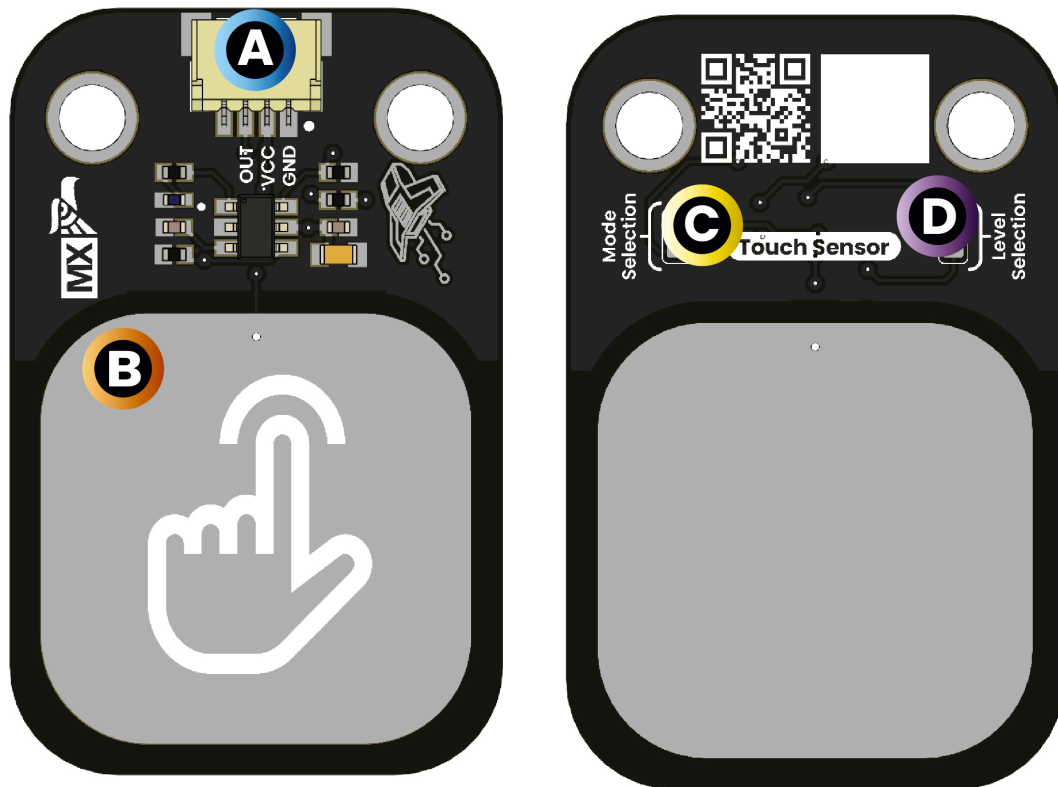
## SIGNAL DESCRIPTION

FUNCTION	NOTES
Power Supply	3.3V or 5V, depending on design
Ground	Common ground reference
Data Signal	Digital Output signal
Solder Jumper	Select between Momentary or Toggle mode
Solder Jumper	Select between low and high sensitivity







# PIN CONFIGURATION LAYOUT

*Physical connector layout and pin positioning*

## PINOUT



## Description:

- |  |   |
|--|---|
|  Supply voltage |  Touch Pad       |
|  GND            |  Mode selection  |
|  Output         |  Level selection |



Complete pin configuration diagram showing all connectors, pin assignments, and electrical connections for proper integration

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Professional Technical Datasheet

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For commercial distribution