TOUCH

Touch Capacitive Sensor

Professional electronic component

v1.0

2025-09-23
Rev. A

PRODUCT OVERVIEW

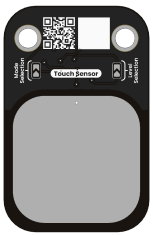
The UNIT Touch Capacitive Sensor transforms a simple touch into a precise digital signal—no buttons, no moving parts. Powered by the TTP223B capacitive sensing chip, this board continuously monitors its flat electrode pad and instantly reports “touch detected” via a clean HIGH logic output. Whether you’re 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.

Fast response
< 80 ms touch detection time.

Auto-calibration
Compensates for environmental changes and drift.

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

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

Mounting holes
Two M3 screw holes for easy panel integration.

JST PH-2.0 connector
Quick-disconnect cable interface.

🎯 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

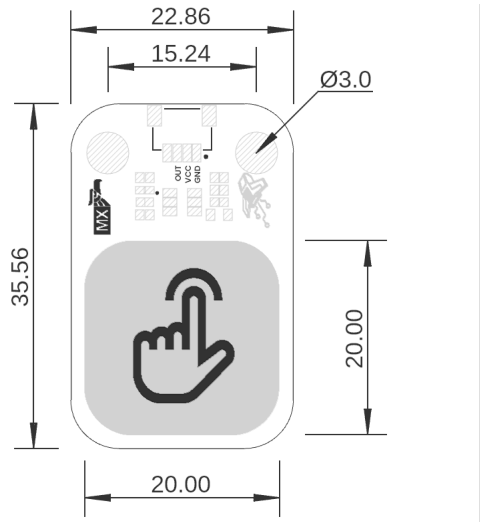
FEATURE	DESCRIPTION
Capacitive Sensing	Utilizes the TTP223B IC to detect changes in capacitance on the large silver touch pad.
Signal Processing	Internal auto-calibration and filtering circuitry remove noise and drift for reliable operation.
Digital Output	OUT pin goes HIGH when touch is detected (capacitance 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

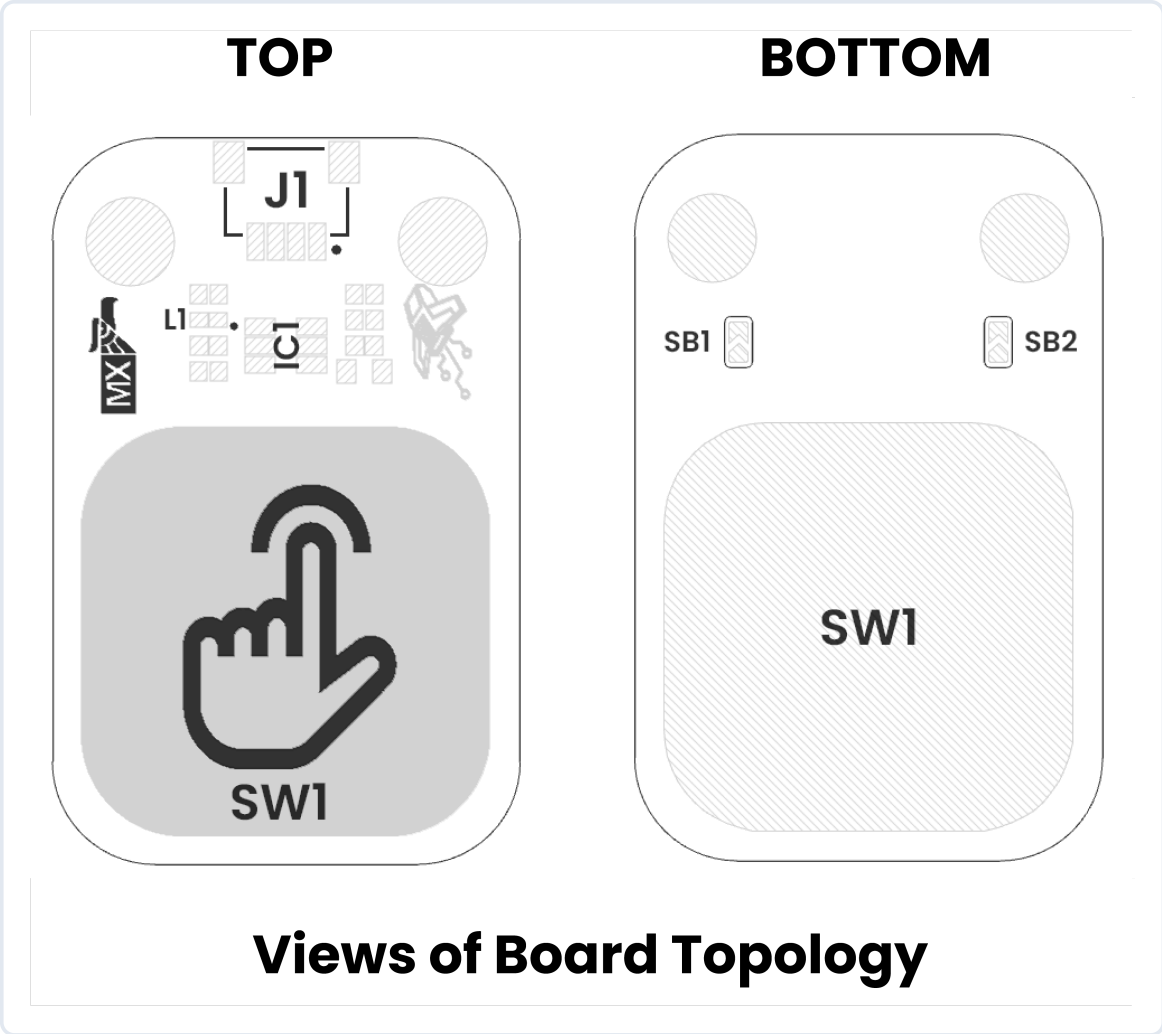
MECHANICAL DIMENSIONS



Mechanical dimensions in millimeters (mm)

Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



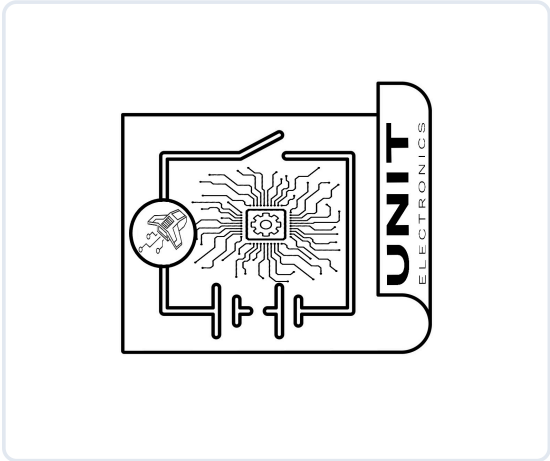
Connection topology and system integration diagram

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

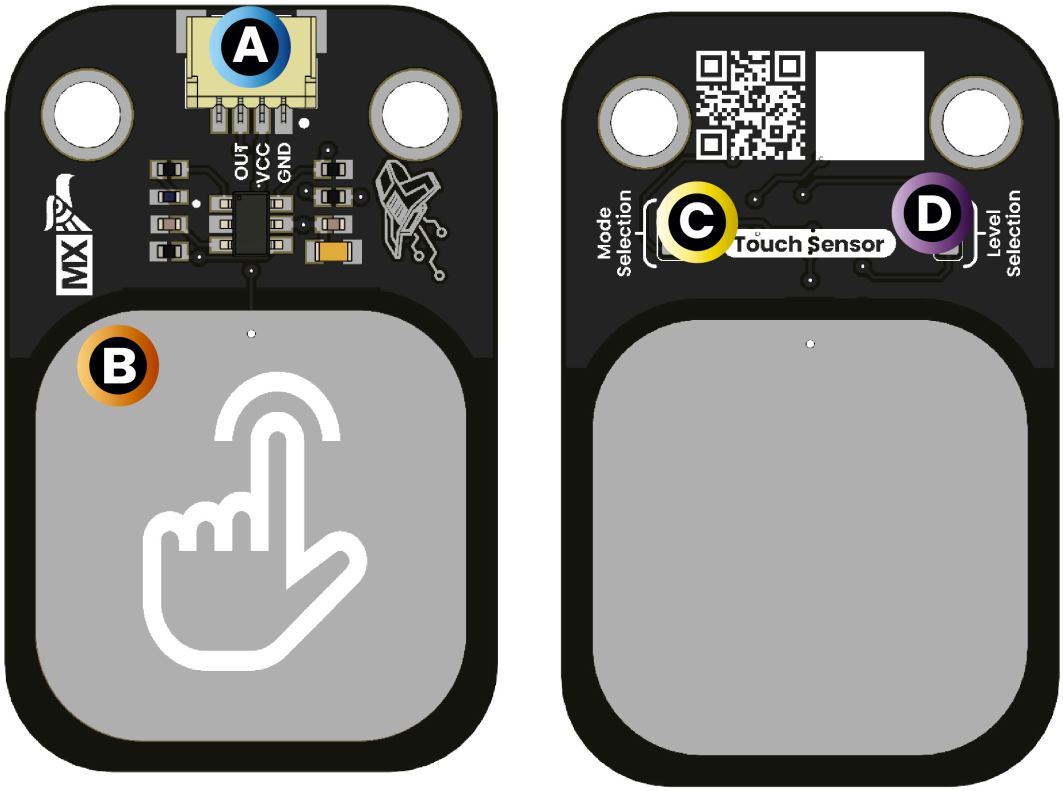
SIGNAL DESCRIPTION

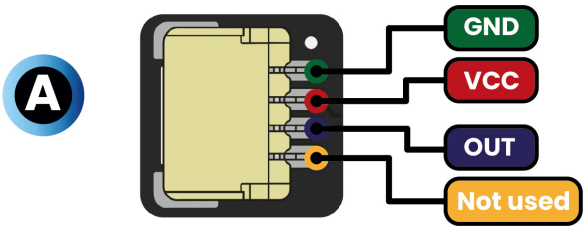
FUNCTION	NOTES
Power Supply	3.3V or 5V, depending on design
Ground	Common ground reference
Data Signal	Digital Output signal
Solder Jumper	Select between Momentary or Toggle mode
Solder Jumper	Select between low and high sensitivity

PIN CONFIGURATION LAYOUT

Physical connector layout and pin positioning

PINOUT





Description:

- Supply voltage
- GND
- Output
- B Touch Pad
- C Mode selection
- D Level selection

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

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