## Introduction:

SIKTEC Keys shield is a DIY Shield which extenda any board to easily integrate a keypad in a professional manner.
The shield features:
- 5 Direction buttons with good looking a caps .
- 2 general purpose buttons (top left can be set a reset button).
- Only 3 pins required – Shift register based keypad.
- Optional Interrupt pin (2,3 or 4).
- Multi keys combination support.
- Well debounced.
- Dedicated `SIKTEC-Keys` library with example code for any AVR board

The shield supports SIKTEC Libraries and Example codes – All examples can be downloaded from GitHub: https://github.com/siktec-lab/SIKTEC-Keys.
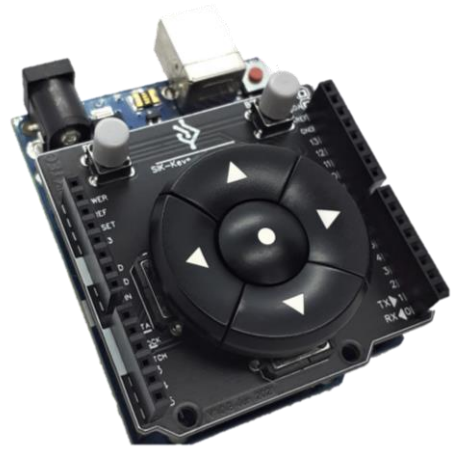
Library features:
- Single key press and multi key combinations.
- Easy callback assignment to keys and combinations.
- KeyEvent object with helper methods to easily interact and use the keypad.
- Dynamic Enable / Disable states.
- Dynamic sensitivity setting for smooth multi-key press detection.
- Initialize pin definition and interrupt handler.
- Well documented Examples.

Compatible and tested on:
- Arduino NANO V3.
- Arduino UNO – R3.
- Arduino LEONARDO.
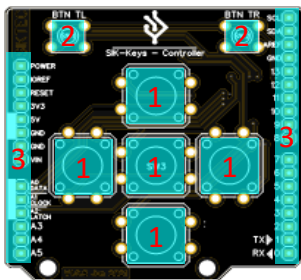- Arduino Mega.
- Arduino DUE.

Panel opening size

Ø37
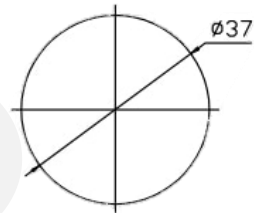
*Cap height from PCB surface 11mm
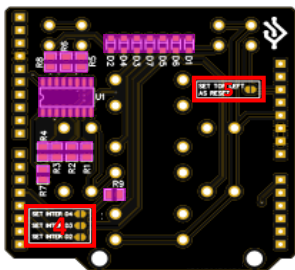
Applications and Why?

While connecting a button is an easy task – using several buttons and cleanly capturing them without bouncing problems and without using most of the available pins on your board is a more complex task. Our goal was to create a straight out of the box shield with a good library that enables any maker to quickly prototype and easily add keypad interaction for any board. This shield has smooth key combination support and is very flexible while using only 3 pins to read 7 keys and any combination.
Feel free to reach out about any question, suggestion and feedback you have ☺.

Assembly Instruction:

- Follow the assembly order as described in the following table. This order is recommended to ease the assembly process.
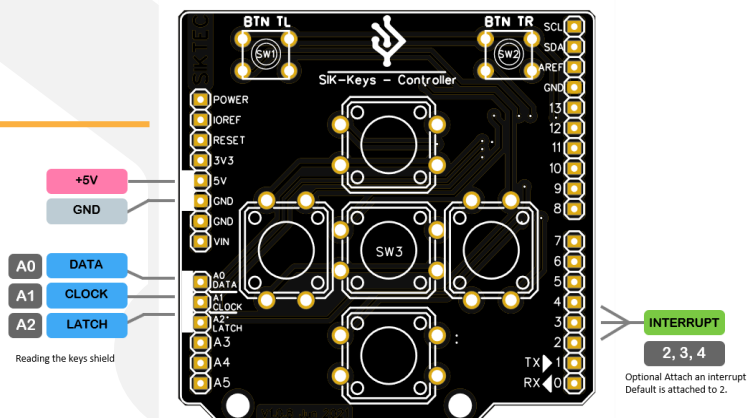
ORDER	SMD - MARKING	THROUGH HOLE - MARKING	REMARKS
1		Tactile buttons with direction caps	
2	All SMD parts are preassembled	Smaller tactile buttons with round caps	
3		Shield headers	2 options - Stackable or Male headers.
4	Solder jumpers to set the interrupt pin		Pin 2 is soldered by default.
5	Solder jumper that connects TOP-LEFT button to the reset pin.		Its not connected by default.

- All SMD parts are preassembled .
- Setting an interrupt pin is recommended but not mandatory – For better performance and robust code use the interrupt as a trigger.
- By default, pin 2 is set as the interrupt – All AVR boards has interrupt capabilities on this pin. To change that – Remove the solder bridge and solder the desired pad on the back of the board.
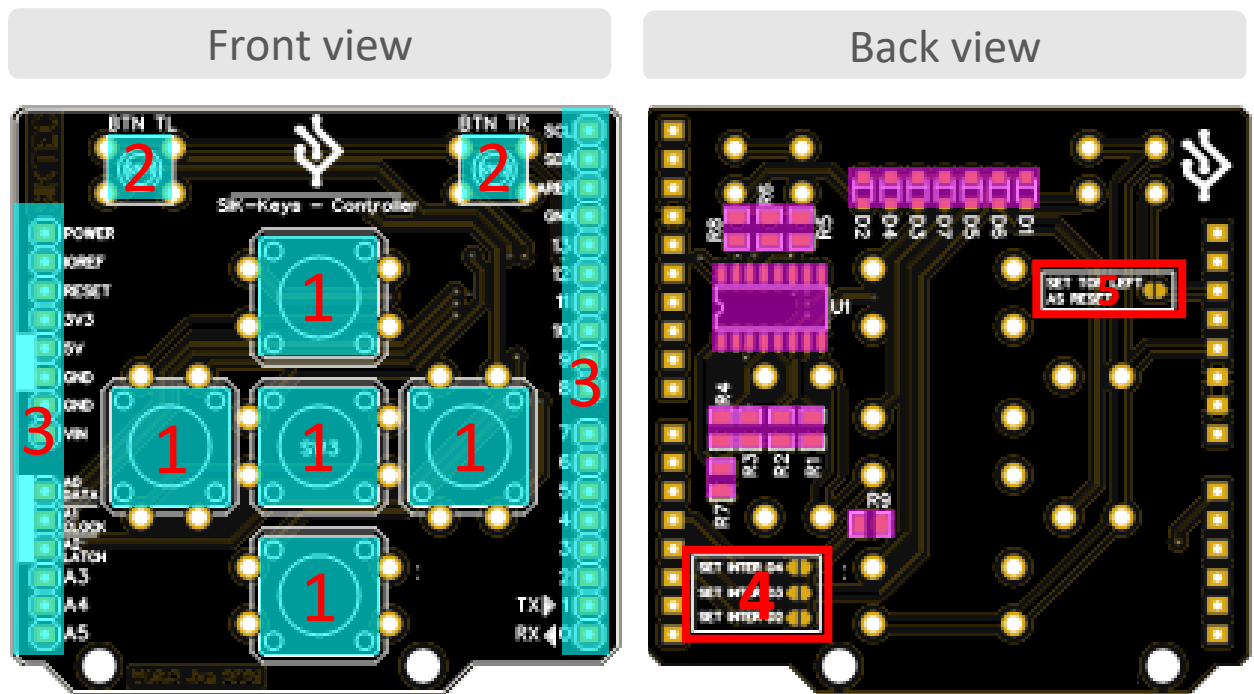
Controller Shield Pinout:

- The pinout of the shield is relative to AVR boards pin numbers. Both the supplied 1.8 TFT, and the SD Card reader are attached to the Hardware SPI pins with the corresponding Chip Select pins as shown in the picture.
- Pin 2,3,4 are configurable by solder bridges on the back of the board.
- A0-2 are the only required pins (analog is not required) for reading the onboard shift register.
- You can set the TL button as a hardware reset button by soldering the marked jumper pad on the back of the board.

+5V
GND
A0 DATA
A1 CLOCK
A2 LATCH

Reading the keys shield

INTERRUPT
2, 3, 4
Optional Attach an interrupt
Default is attached to 2.

Assembling Cheat Sheet:

Front view	Back view

ORDER	SMD - MARKING	THROUGH HOLE - MARKING	REMARKS
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Populated Pins Overview:

+5V

GND

A0 — DATA

A1 — CLOCK

A2 — LATCH

Reading the keys shield

INTERRUPT

2, 3, 4

Optional Attach an interrupt
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