

## PmodBTN™ Reference Manual

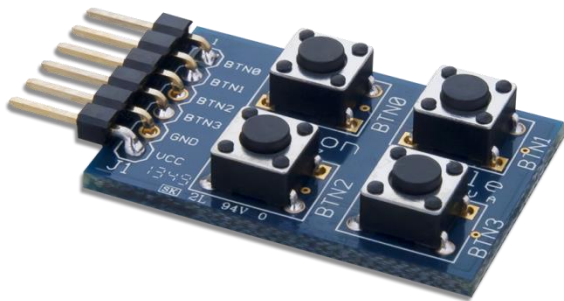
Revised May 24, 2016

This manual applies to the PmodBTN rev. A

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### Overview

The Digilent PmodBTN gives users four momentary push-buttons for easy user inputs for the system board.



*The PmodBTN.*

Features include:

- Four momentary pushbuttons
- Debouncing filters
- Inverting Schmitt Triggers
- Small PCB size for flexible designs 1.2" × 0.8" (3.0 cm × 2.0 cm)
- 6-pin Pmod connector with GPIO interface
- Follows [Digilent Pmod Interface Specification](#) Type 1

## 1 Functional Description

The PmodBTN utilizes analog filters consisting of two resistors and a capacitor to absorb and smooth out any signal bounces that naturally occur when pressing a button. The smoothed out voltage signal is then fed to an inverting Schmitt-trigger which will then report a logic high voltage to the system board when a button is pressed or a logic low voltage when the button is not being pressed.

## 2 Interfacing with the Pmod

The PmodBTN communicates with the host board via the GPIO protocol. For this Pmod, it will only ever send data to the system board and ignore any signals that it might receive from the system board.

Each button is equipped with its own filter, Schmitt-trigger, and data line so that each button can be pressed independently of each other. Users may also press the buttons simultaneously for up to 16 different input combinations.

A pinout description and diagram of the PmodBTN are provided below:

Pin	Signal	Description
1	BTN0	Button 0
2	BTN1	Button 1
3	BTN2	Button 2
4	BTN3	Button 3
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V/5V)

Table 1. Connector J1: Pin descriptions as labeled on the Pmod.

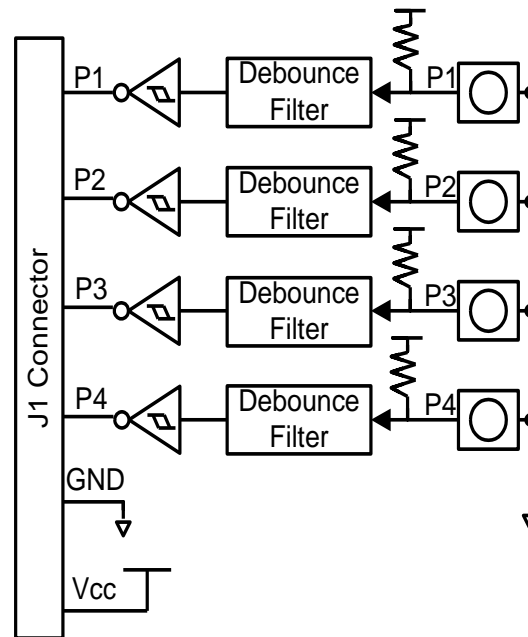


Figure 1. BTN circuit diagram.

Any external power applied to the PmodBTN must be within 1.65V and 5.5V; however, it is recommended that Pmod is operated at 3.3V.

### 3 Physical Dimensions

The pins on the pin header are spaced 100 mil apart. The PCB is 1.2 inches long on the sides parallel to the pins on the pin header and 0.8 inches long on the sides perpendicular to the pin header.