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PmodKYPD™ Reference Manual

Revised April 8, 2016
This manual applies to the PmodKYPD rev. B

Overview

The Digilent PmodKYPD is a 16 button keypad, providing users with immense configurability.

The PmodKYPD.

Features include:

- 16 momentary push-buttons
- Can detect simultaneous button presses
- Isolated rows and columns
- Small PCB size for flexible designs 3.4“ × 2.7” (8.6 cm × 6.9 cm)
- 12-pin Pmod port with GPIO interface
- Follows Digilent Pmod Interface Specification Type 1
- Library and example code available in resource center

1 Functional Description

The PmodKYPD utilizes 4 rows and columns to create an array of 16 momentary pushbuttons. By driving the column lines to a logic level low voltage one at a time, users may read the corresponding logic level voltage on each of the rows to determine which button, if any, is currently being pressed. Simultaneous button presses can also be recorded, although it is still required to step through each row and column separately in order to ensure that the pressed buttons do not interfere with each measurement.

2 Interfacing with the Pmod

The PmodKYPD communicates with the host board via the GPIO protocol. Each button is placed within a simple voltage divider circuit. When a button is not pressed, a large pull-up resistor maintains a logic level high voltage on each of the row pins. When a column pin is driven to a logic level low voltage and a corresponding

button is pressed, completing the voltage divider circuit, the row pin will then read a logic level low voltage instead.

Header J1					
Pin	Signal	Description	Pin	Signal	Description
1	COL4	Column 4	7	ROW4	Row 4
2	COL3	Column 3	8	ROW3	Row 3
3	COL2	Column 2	9	ROW2	Row 2
4	COL1	Column 1	10	ROW1	Row 1
5	GND	Power Supply Ground	11	GND	Power Supply Ground
6	VCC	Power Supply (3.3V/5V)	12	VCC	Power Supply (3.3V/5V)

Table 1. Pinout description table.

Any external power applied to the PmodKYPD must be within a voltage that your system board can handle; 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 3.4 inches long on the sides parallel to the pins on the pin header and 2.7 inches long on the sides perpendicular to the pin header.