

Digilent PmodDIN1™ Digital Input Module Reference Manual

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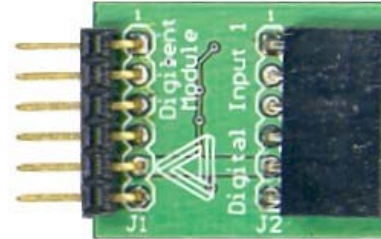


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Overview

The Digilent PmodDIN1 Digital Input Module Board (the DIN1™) debounces digital input signals so they can be used directly by a Digilent system board. The DIN1 can receive signals from switches, sensor devices, or any other standard logic inputs.



Features include:

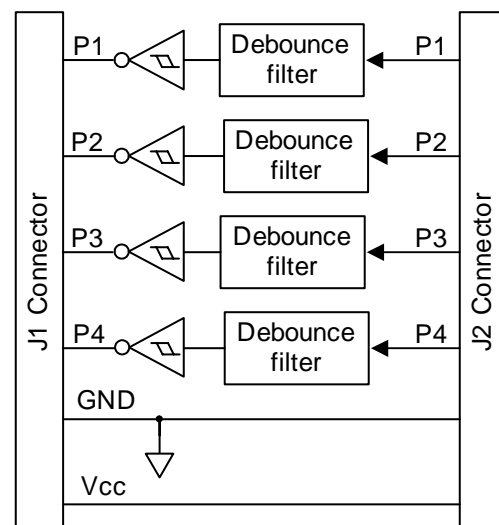
- four digital-input channels with ESD protection diodes
- four debouncing filters with Schmitt-trigger inverters
- a 6-pin header and 6-pin connector
- small form factor (0.80" x 0.80").

Functional Description

Inputs to the DIN1 are debounced to eliminate multiple signal transitions that may be caused by inputs arising from noisy or “bouncing” sources like buttons and switches. Each of the DIN1’s four channels has an analog filter consisting of two resistors and a capacitor, with a time constant of approximately one millisecond. The filters absorb and diffuse signal noise before it can reach the threshold needed to activate the Schmitt-trigger inverters. The Schmitt-trigger inverters ensure signals transition quickly and cleanly between low and high logic levels.

The four signal inputs can be used individually or any of them can be used simultaneously.

The DIN1 has two protection diodes that prevent damage to the inverter from overvoltage (for example, from an ESD discharge). The protection diodes are on the input side of each channel and clamp voltage input to VCC or ground. The diodes allow for a maximum safe continuous current of 15mA and a safe voltage range between -6V and 10V.



DIN1 Circuit Diagram

A resistor is also installed on the output side of each channel to protect the DIN1 from conflicting output voltages.

The DIN1 can receive signals from switches and standard logic inputs. To use standard logic inputs, it is necessary to sink at least one mA of current in order to drive the module.

The DIN1 has a 6-pin header for easy connection to a Digilent system board. Some system boards, like the Digilent Pegasus board, have a 6-pin header that can connect to the DIN1 with a 6-pin cable. To connect the DIN1 to other Digilent system boards, a Digilent Modular Interface Board (MIB) and a 6-pin cable may be needed. For more information, see www.digilentinc.com