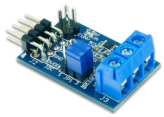

DIGILENT PmodPMON1 Power Monitor User Manual

Contents

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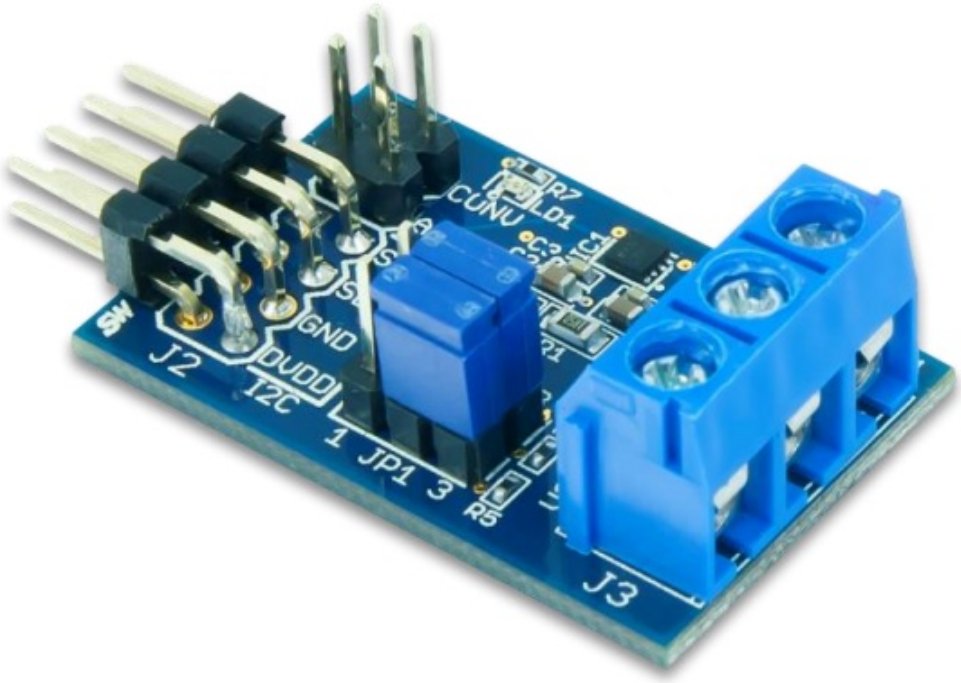

Product Information

PmodPMON1TM

The PmodPMON1TM is a monitoring module designed by Digilent, Inc. It allows users to monitor current draw and voltages for various devices. The module offers the following features:

- Monitor current draw less than 1.058 A
- Wide range of configurable alert conditions
- Monitor voltages from 3.16 V to 26 V
- Configurable device address for up to nine devices

Product Usage Instructions

Using Multiple PmodPMON1s

In order to use multiple PmodPMON1s on a single I2C bus, follow these steps:

1. Connect each individual PmodPMON1 to the I2C bus.
2. Program the desired potentiometer value into the EEPROM on the AD5112 for each PmodPMON1. This value will become the default starting value for the potentiometer.
3. Note that the alert functionality on the ADM1191 will not work properly without programming each individual device.
4. Refer to Table 2 for jumper descriptions related to device configuration.

Device Configuration

For specific information related to device configuration on the AD5112 and ADM1191, please refer to the data sheets available at **www.analog.com**.

Connector Descriptions

Pin	Signal	Description
1,2	CONV	Trigger a conversion
3,4	Overcurrent or overvoltage ALERT event	
1,2	SCL	Serial Clock
3,4	SDA	Serial Data
5,6	GND	Ground
7,8	DVDD	Input Voltage
1	VIN	Input voltage of device to be monitored
2	GND	Ground
3	VOUT	Voltage supplied to device being monitored

Jumper Descriptions

Jumper	Setting	Description
JP1	1 3 OFF	ADM1191 Address bit 3 and 2 set to 0b00
JP2	1 3 OFF	ADM1191 Address bit 3 and 2 set to 0b01
	ADM1191 Address bit 3 and 2 set to 0b10	
	ADM1191 Address bit 1 and 0 set to 0b00	
	ADM1191 Address bit 1 and 0 set to 0b01	
	ADM1191 Address bit 1 and 0 set to 0b10	

Overview

The PmodPMON1 employs the Analog Devices® AD5112 and ADM1191 to create a system power monitor.

Features include:

- Monitor current draw less than 1.058 A
- Wide range of configurable alert conditions
- Monitor voltages from 3.16 V to 26 V
- Configurable device address for up to nine modules in a single system
- Small PCB size for flexible designs 1.2“ × 0.8” (2.8 cm × 2.0 cm)
- 2×4-pin connector with I2C interface
- Follows Digilent Pmod Interface Specification

Functional Description

Customers can configure the PMON1 to a wide range of possible alert conditions from the ADM1191 by using the configurable AD5112 potentiometer. The AD5112 upper potentiometer connection ties to DVDD through a filtering ferrite bead and the lower connection connects to GND. (See Table 1 for Connector Descriptions.) The wiper directly connects to the SETV pin on the ADM1191 to allow for the wide range of alert conditions. If an alert condition occurs, LD1 on the PMON1 will illuminate and the alert pin will go to a logic low state.

Using Multiple PmodPMON1s

In order to use multiple PMON1's on a single I2C bus, each individual PMON1 will need to be connected; and the desired potentiometer value programmed into the EEPROM on the AD5112. Any stored value will become the default starting value for the potentiometer. The alert functionality available on the ADM1191 will not functionproperly without programming each individual device. (See Table 2 for jumper descriptions.)

Device Configuration

For specific information related to device configuration on the AD5112 and ADM1191, please refer to the data sheets available at **www.analog.com**

Connector J1 – Control Pins		
Pin	**Signal**	**Description**
1,2	CONV	Trigger a conversion
3,4	*ALERT*	Overcurrent or overvoltage event
Connector J2 – I2C Interface		
1,2	SCL	Serial Clock
3,4	SDA	Serial Data
5,6	GND	Ground
7,8	DVDD	Input Voltage
Connector J3 – Power Monitor Screw Terminal		
1	VIN	Input voltage of device to monitored
2	GND	Ground
3	VOUT	Voltage supplied to device being monitored

Table 1. Connector descriptions.

Jumper	Setting	Description
JP1	1	ADM1191 Address bit 3 and 2 set to 0b00
	3	ADM1191 Address bit 3 and 2 set to 0b01
	OFF	ADM1191 Address bit 3 and 2 set to 0b10
JP2	1	ADM1191 Address bit 1 and 0 set to 0b00
	3	ADM1191 Address bit 1 and 0 set to 0b01
	OFF	ADM1191 Address bit 1 and 0 set to 0b10

Table 2. Jumper descriptions.

Documents / Resources

	DIGILENT PmodPMON1 Power Monitor [pdf] User Manual PmodPMON1 rev. B, PmodPMON1 Power Monitor, PmodPMON1, Power Monitor, Monitor

References

- Mixed-signal and digital signal processing ICs | Analog Devices
- Digilent â€“ Start Smart, Build Brilliant.