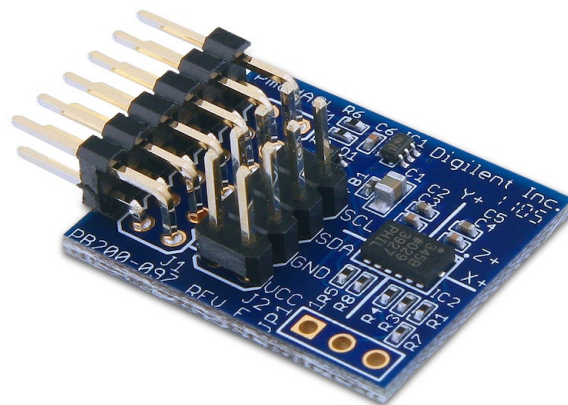


Overview

The PmodACL is a 3-axis digital accelerometer module powered by the Analog Devices ADXL345.

Features include:

- user-selectable resolution
- single-tap/double-tap detection
- activity/inactivity monitoring
- free fall detection
- SPI and I²C interfaces



Functional Description

The PmodACL uses a standard 12-pin connector and can communicate via SPI or I²C. A pull-up resistor on the ~SS line keeps the ADXL345 in I²C mode unless the host drives the line low, in which case the device will communicate via SPI.

Interface

All communications with the device must specify a register address and a flag indicating whether the communication is a read or a write. This is followed by the actual data transfer.

Device configuration is performed by writing to control registers within the device. Accelerometer data is accessed by reading device registers.

A full list of registers and their functionality, as well as communication specifications, is found in the ADXL345 datasheet available on the Analog Devices website.

Interface Connector Signal Description

Connector J1 – SPI Communications		
Pin	Signal	Description
1	~SS	Slave Select
2	MOSI / SDA	SPI Master out Slave in Data / I ² C Data
3	MISO	SPI Master in/Slave out Data
4	SCLK	Serial Clock
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V)
7	INT2	Interrupt 2
8	INT1	Interrupt 1
9	NC	Not Connected
10	NC	Not Connected
11	GND	Power Supply Ground
12	VCC	Power Supply (3.3V)

The SPI interface standard uses four signal lines. These are slave select (~SS), master out slave in (MOSI), master in slave out (MISO), and serial clock (SCLK). These signals map to the following signals on the ADXL345: ~SS corresponds to the Chip Select signal (~CS), MOSI corresponds to Serial Data Input (SDI), MISO corresponds to Serial Data Output (SDO), and SCK corresponds to the Serial Clock signal (SCLK).

Connector J2 – I ² C Communications		
Pin	Signal	Description
1, 2	SCLK	Serial Clock
3, 4	SDA / SDI / SDIO	I ² C Data / SPI Master out Slave in Data
5, 6	GND	Power Supply Ground
7, 8	VCC	Power Supply (3.3V)

The I²C interface standard uses two signal lines. These are I²C data (SDA) and serial clock (SCLK). These signals map to the serial data (SDA) and serial clock (SCLK) respectively on the ADXL345.

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Website :

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Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com