

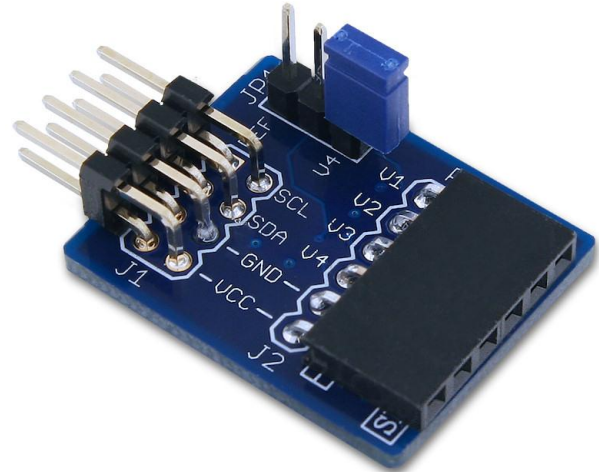
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Overview

The PmodAD2 is an analog to digital converter module with up to 4 channels at 12-bit resolution powered by the Analog Devices AD7991.

Features include:

- Up to 4 analog to digital converter channels
- Up to 12-bit resolution
- On-board 2.048V Voltage Reference
- Ability to choose the reference voltage
- I²C interface



Functional Description

The PmodAD2 uses an 8-pin connector that allows communication via I²C. The PmodAD2 also has a 6-pin connector that allows up to 4 analog inputs or up to 3 analog inputs and a voltage reference.

Interface

All communications with the device must specify a device address and a flag indicating whether the communication is a read or a write. This is followed by the actual data transfer. For more details on read and write procedures please view the AD7991 datasheet.

Device configuration is performed by writing to the configuration register within the device. This allows the user to choose which channels are to be converting data, whether or not there is an external reference voltage, and whether or not there is bit trial or sample delay, for more details please view the AD7991 datasheet. In order to read data from the conversion result please consult the section “Reading from the AD7991/AD7995/AD7999” in the AD7991 datasheet.

Interface Connector Signal Description

Connector J1 – I ² C Communications		
Pin	Signal	Description
1, 2	SCL	I ² C Clock
3, 4	SDA	I ² C 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 I²C clock (SCL). These signals map to the serial data (SDA) and serial clock (SCL) respectively on the AD7991.

Connector J2 – Analog Input		
Pin	Signal	Description
1	VIN1	Analog Input 1
2	VIN2	Analog Input 2
3	VIN3	Analog Input 3
4	VIN4	Analog Input 4
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V)

Analog Inputs and V_{Ref}

The PmodAD2 allows for up to 4 analog inputs VIN1 – VIN4. In order to use the input VIN4 the jumper JP1 must be set to V4.

In the configuration register there is a bit REF_SEL that when enabled allows a different voltage other than the supply voltage to be used as the reference. If REF_SEL is enabled, V_{Ref} is 2.048V from the on board voltage reference generator if JP1 is set to REF, if JP1 is set to V4 V_{Ref} is the voltage at input VIN4.