

Grove - 4 Channel 16-bit ADC (ADS1115) w/ Programmable Amplifier Gain

SKU 109020041

The Grove - 4 Channel 16-bit ADC (ADS1115) is a 4-channel 16-bit high-resolution, low-power ADC chip with PGA (programmable gain amplifier) function. The PGA allows it to measure input voltages from ± 256 mV to ± 6.144 V, thus greatly expanding its application scenarios.

Key Features

- Wide supply range: **2.0V ~ 5.5V**, support 3.3/5V system
- **16-bit high-resolution ADC**
- Programmable Data Rate: **8 SPS to 860 SPS**
- Internal Programmable Gain: x16 with Internal low-drift voltage reference and oscillator
- The built-in PGA is gain-adjustable and can be controlled by software
- 4 Single-Ended Inputs or 2 Differential Inputs

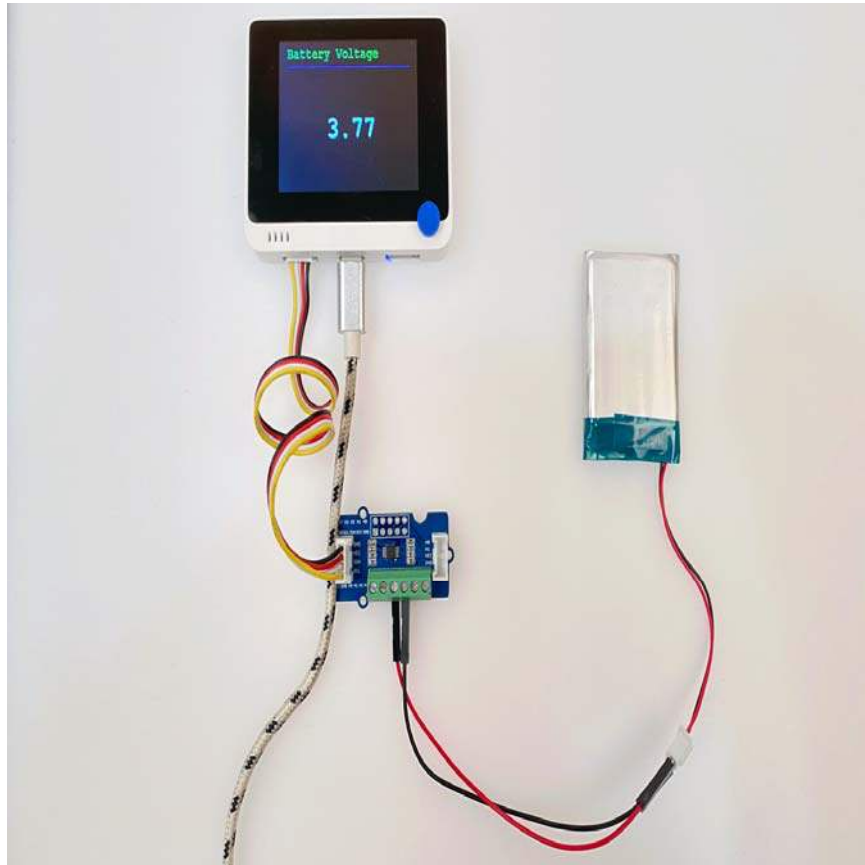
Description

We know that Raspberry Pi is ADC-free and its I/O can only handle digital signals. Therefore, when analog sensors are involved, an external ADC module is needed to convert the analog signal to digital. On the other hand, although most Arduino(like Arduino UNO) come with a 10-bit ADC, which is not very accurate, and the resolution is affected by the reference voltage, so it is not suitable for some applications where high accuracy is required and the operating voltage range is wide. The Grove ADS1115 solves these problems perfectly.

The ADS1115 is a 4-channel 16-bit high-resolution, low-power ADC chip with PGA (programmable gain amplifier) function. The PGA allows it to measure input voltages from ± 256 mV to ± 6.144 V, thus greatly expanding its application scenarios.

At the same time, the ADS1115 has an input multiplexer (MUX) that allows two-channel differential-input measurements or four-channel single-ended input measurements.

Therefore, it is possible to measure the value of 4 analog sensors as well as to use the differential measurement for battery voltage detection. The chip has a continuous measurement mode and a single measurement mode, and the standby power consumption in the single measurement mode is extremely low, making it ideal for IoT applications.



For communication, the module uses I2C communication with four optional I2C addresses, allowing for multi-chip cascading for more complex scenarios. With the Grove connector, you can connect Grove - ADS1115 with your Raspberry Pi and Arduino easily.

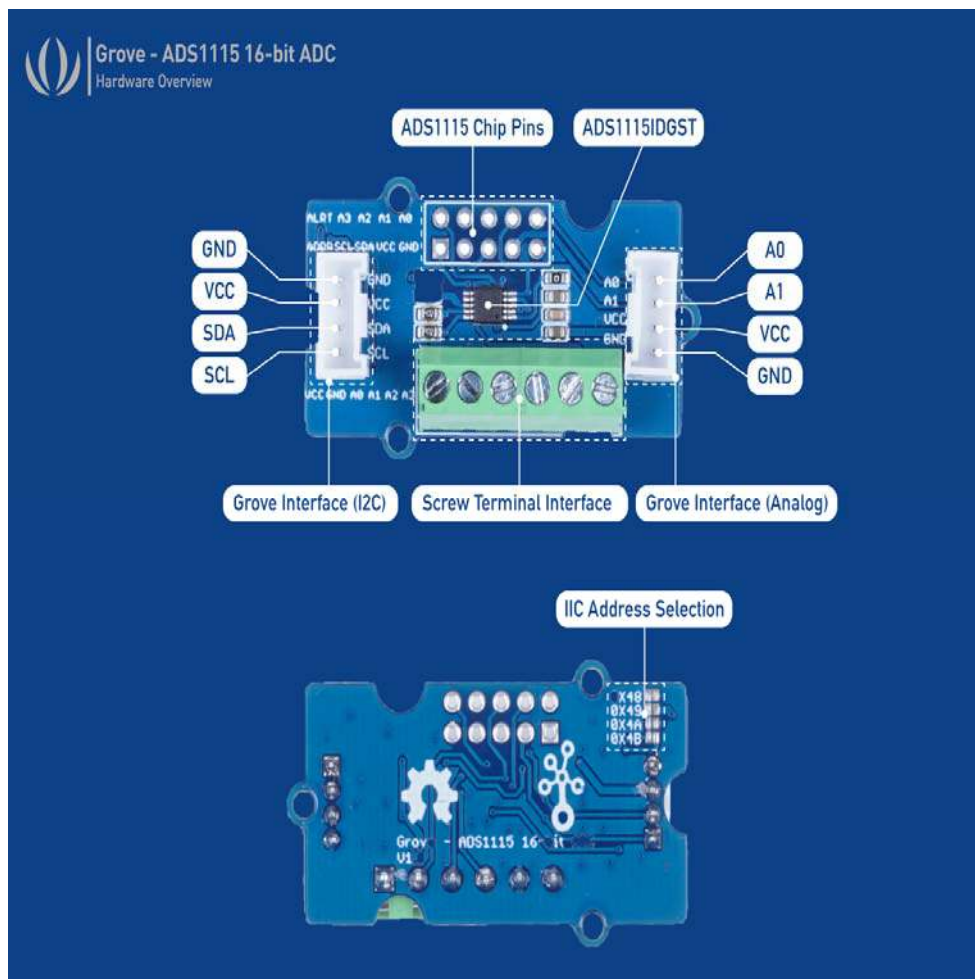
Applications

- Analog-to-Digital converter
- Portable instrumentation
- Battery monitoring
- High precision measurement
- Factory automation and process controls

Specifications

Parameter	Value
Input voltage	3.3V / 5V
ADC Resolution	16 Bit
Programmable Data Rate	8SPS - 860 SPS
Channels	4-channel single-ended input or 2-channel differential input
Interface	I2C, Default Address: 0x48, optional I2C address: 0x48/0x49/0x4A/0x4B

Hardware Overview



Part List:

- Grove - 4-Channel 16 Bit ADC (ADS1115) x 1
- 20mm Grove Cable x 1

ECCN/HTS

HSCODE 8517709000

UPC

