

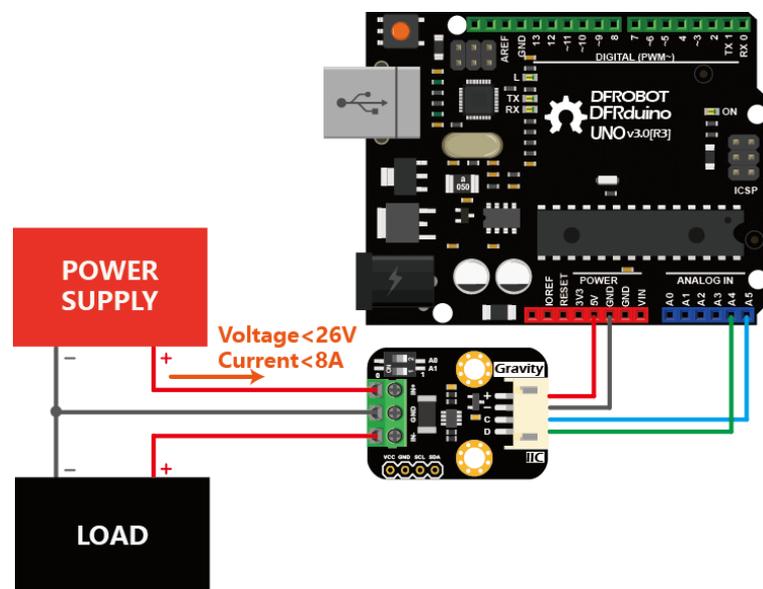
Gravity: I2C Digital Wattmeter

INTRODUCTION

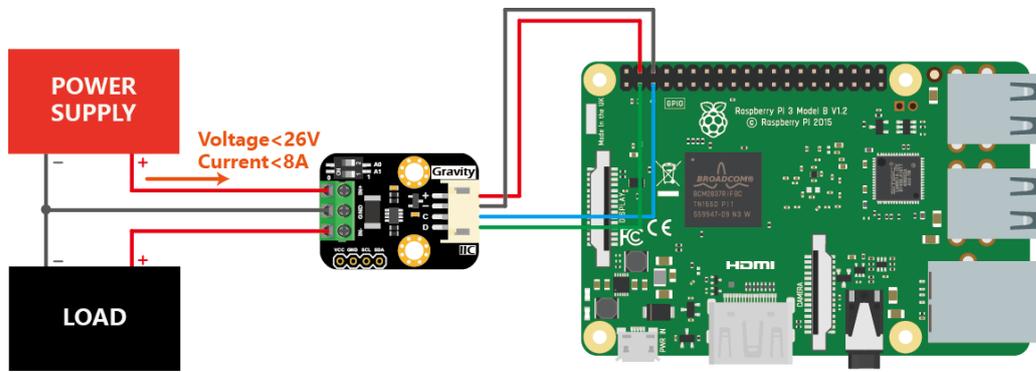
Gravity: I2C Digital Wattmeter is a high-resolution, high-precision, large-scale measurement module that can measure the voltage, current and power of various electronic modules and electrical equipment within 26V 8A, and the maximum relative error is no more than $\pm 0.2\%$ (A simple manual calibration is required before usage). It can be used for power consumption or battery life evaluation of solar energy systems, battery, motors, controller or electronic modules.

The module adopts TI INA219 zero temperature drift current/power monitoring chip and 2W high power low temperature drift 10m Ω alloy sampling resistor. The voltage and current resolution can reach 4mV and 1mA respectively. Under the full scale measurement condition, the maximum relative error of voltage and current measurement can be superior to $\pm 0.2\%$. It also provides four I2C addresses that can be configured via the 2P DIP switch. The module accurately measures bi-directional high-side currents (current flowing through the power supply or battery positive), which is especially useful in solar or battery fuel gauge applications where the battery needs to be charged and discharged. This status can be simply determined by positive or negative current readings. In the motor applications, the current can be monitored in real time by monitoring whether the motor current is too large due to overload. In addition, you can use this module to measure the power consumption of various electronic modules or the entire project to evaluate battery life.

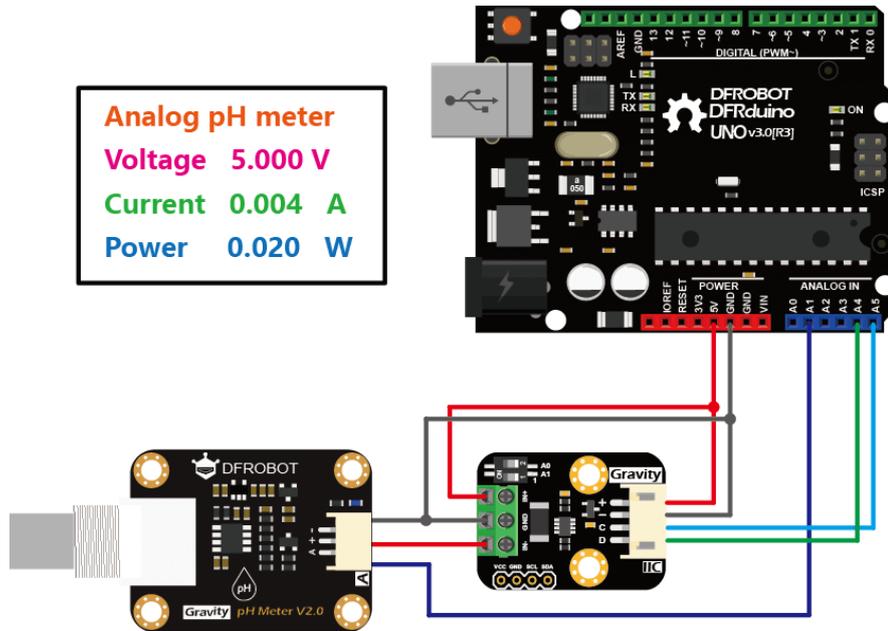
Connection Diagram



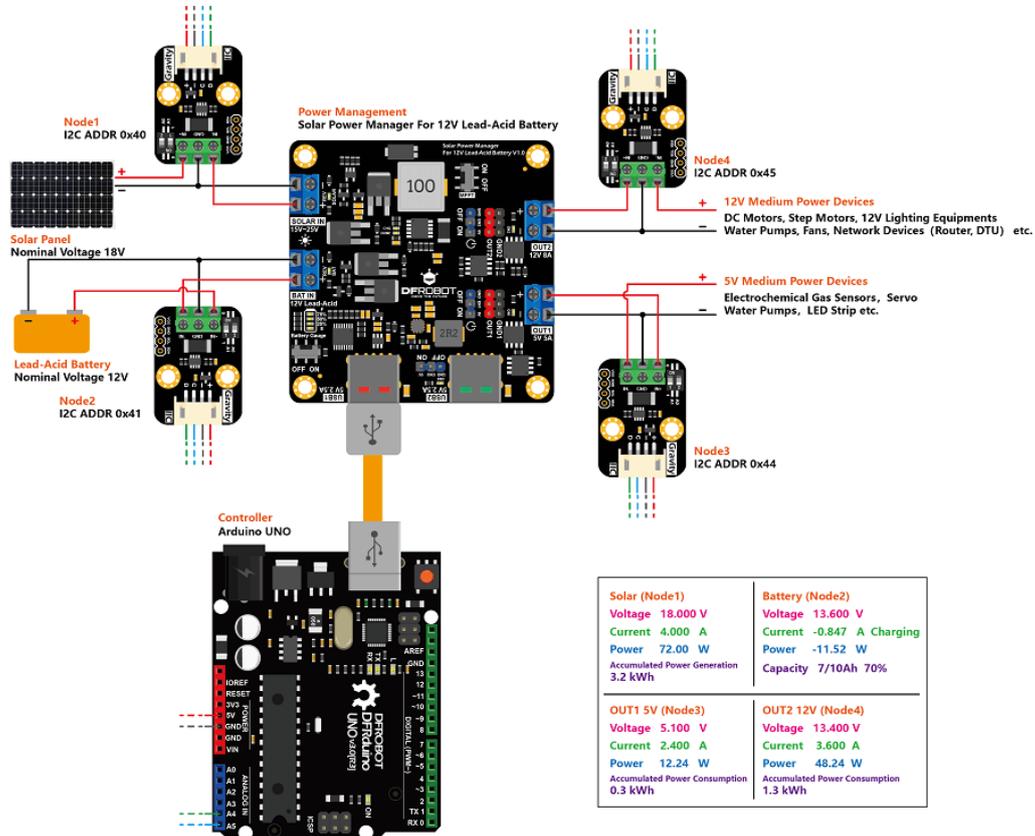
Gravity: I2C Digital Wattmeter Connection Diagram (Arduino UNO)



Gravity: I2C Digital Wattmeter Connection Diagram (Raspberry Pi 3B)



Measuring the power consumption of the Gravity: pH meter



Monitor the power consumption of the solar panel, battery and outputs of a solar system

FEATURES

High precision, high resolution, large range, low temperature drift

Bidirectional current high side measurement

Compatible with 3.3V/5V controller

Sophisticated and compact, easy to embed in the project

APPLICATIONS

Solar Power Management

Battery Fuel Gauge

Electronic Module Power Evaluation

SPECIFICATION

Input Voltage (VCC) : 3.3V~5.5V

Voltage Range (IN+ or IN- relative to GND): 0 ~ 26 V

Voltage Resolution: 4 mV

Voltage Relative Error: $<\pm 0.2\%$ (Typical)

Current Range: 0 ~ $\pm 8A$ (Bidirectional current)

Current Resolution: 1mA

Current Relative Error: $<\pm 0.2\%$ (Typical, manual calibration required)

Power Range: 0 ~ 206 W

Power Resolution: 20 mW (Hardware) / 4 mW (Software)

Quiescent Current: 0.7 mA

Interface: Gravity I2C (logic level: 0-3.3V)

I2C Address: Four options 0x40, 0x41, 0x44, 0x45

Dimension: 30.0mm*22.0mm/1.18*0.87 in

Weight: 4g

SHIPPING LIST

Gravity: I2C Digital Wattmeter	x1
XH2.54-4P Black Header	x1
Gravity-4P I2C/UART Sensor Wire	x1

