Ameter Unit

SKU:U086

Description

Ameter Unit is a current meter that can monitor the current in real time. The 16-bit ADS1115 ADC (analog-to-digital) converter can be used to communicate through I2C protocol (By default the I2C address is 0X48 unless manually modified).

In order to ensure the measurement accuracy, there is a built-in DC-DC isolated power supply.

The I2C interface is also electrically isolated through the low-power isolator module CA-IS3020S, This prevents noise and surges on the data bus or other circuits from entering the local ground terminal to interfere or damage sensitive circuits.

Each Unit is factory calibrated with initial accuracy of 0.1%FS, ±1 count and resolution of 0.3mA.

The unit has a maximum measurement current of ±4A, and an internal integrated 4A fuse to prevent excessive measurement current from burning out the circuit.

> ? EEPROM (0x51) has built-in calibration parameters when leaving the factory. Please do not write to the EEPROM, otherwise the calibration data will be overwritten and the measurement results will be inaccurate.

Product Features

- ±4A range
- 16-bit ADC conversion
- Inital Accurancy 0.1%FS, ±1 count
- Resolution 0.3mA
- LED power indicator
- 4A Slow-blow Fuse
- Factory calibration (Cal data saved in on-board EEPROM)
- Built-in I2C isolator CA-IS3020S
- Isolated DC-DC
- Development platform: Arduino, UIFlow (under development)
- 2x LEGO compatible holes

Includes

- 1x Ameter Unit
- 1x Grove Cable (20cm)

Application

- galvano-meter
- electricity monitoring
- power management monitoring

Specification

Resources	Parameter
Measuring range	±4A
Communication protocol	I2C：0x48
Net Weight	9g
Gross Weight	24g
Product Size	65*24*8mm
Package Size	67*53*12mm

Measurement Range Gain Setting

There are different range of resolutions, the %of error values for each result might be different as well. please set the appropriate range according to the application needs in order to maximize the accuracy. Do not write the values into the EEPROM, If you'd like to save the custom calibration values to EEPROM，Using the following example, the factory data will be
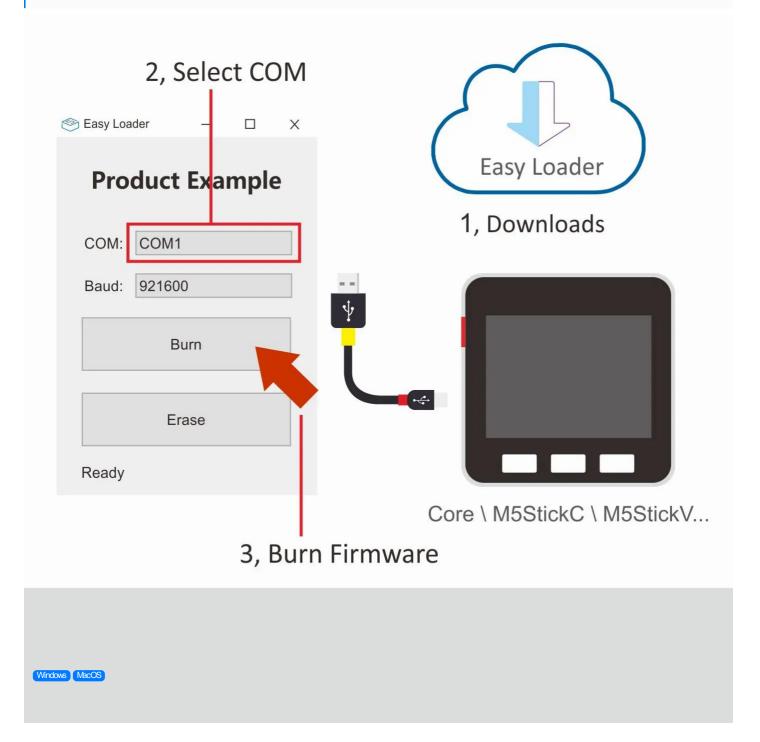
lost (overwritten)

Absolute maxium 6A Do not exceed it, otherwise the equipment will be burnt down.

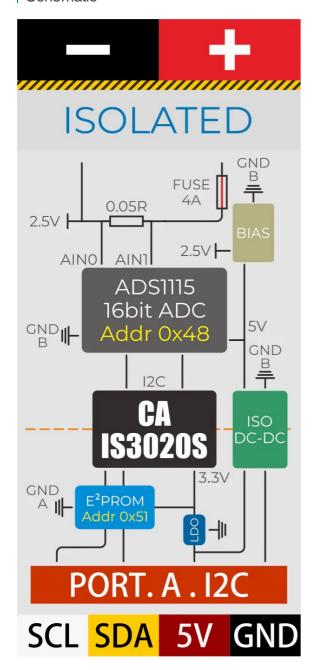| Current measurement range	Maximum input current(A)	Power dispensation(W)	Minimum resolution(mA)	Gain factor
PAG_4096(Calibrated)	±4	83.88	2.5	0.125
PAG_256(Calibrated)	±2.56	0.32768	0.15626	0.007813

EasyLoader

EasyLoader is a concise and fast program writer, which has a built-in case program related to the product. It can be burned to the main control by simple steps to perform a series of function verification. Please install the corresponding driver according to the device type. M5Core host Please click here to view the CP210X driver installation tutorial, M5StickC/V/T/ATOM series can be used without driver)

Windows MacOS
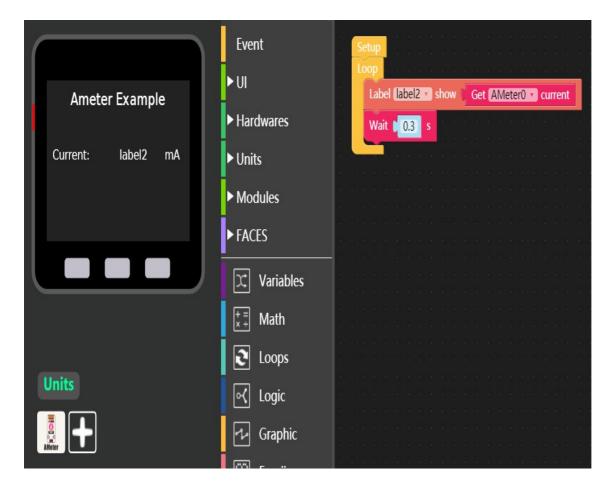
Related Link

- **Datasheet**
  - CA-IS3020S

Schematic

PinMap

M5Core(GROVE A)	SDA(GPIO21)	SCL(GPIO22)	5V	GND
A Meter Unit	SDA	SCL	5V	GND

Example

1. Arduino

- Click here to download the Arduino example

2. UIFlow

- Click here to download the UIFlow example

Last updated: 2020-12-10