

# Meters

- [SIN9020S Voltage Meter](#)
  - [Overview](#)
  - [Technical Specs](#)
  - [Wiring](#)
  - [Settings](#)
    - [Protection Functions](#)
    - [To Enable Protection Functions](#)
    - [To Set Protection Function Parameters](#)
    - [Setting the Capacity of your Battery](#)
    - [Charge/Discharge Indicator](#)
    - [Resetting Meter](#)
    - [Calibration Mode](#)
    - [Turn Screen off](#)
- [VAC9010H Meter](#)
  - [Wiring](#)
    - [Connections](#)
    - [With No Relay or Power Supply Connections](#)
    - [With Independent Meter Power](#)
    - [With Relay](#)

## SIN9020S Voltage Meter

### Overview

The SIN9020S voltage meter is able to measure:

- voltage
- current
- charge and discharge capacity
- time
- power

#### Protection Features

- over voltage protection
- under voltage protection
- over current protection
- over-charging capacity protection

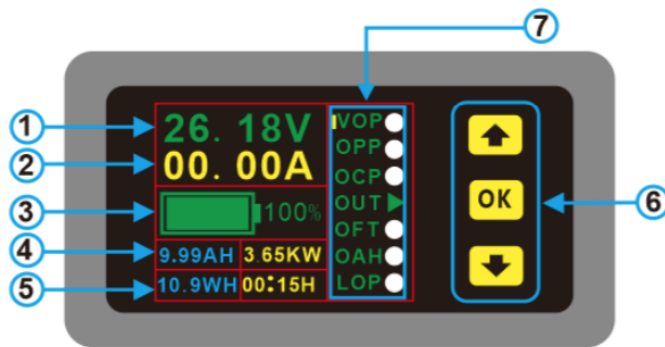


Figure 1-1 SIN9020S Front View

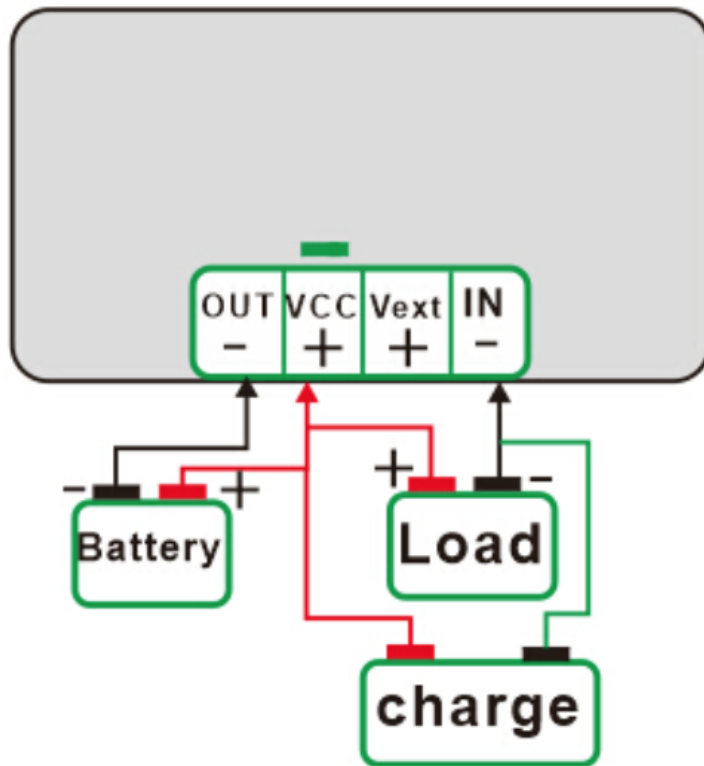
Grade	Explanation
1	Voltage values
2	Current values
3	Percent by volume and A progress bar
4	AH number (blue), Power values (yellow)
5	WH number (blue),The time value (yellow)
6	Select the menu protection
7	Buttons

## Technical Specs

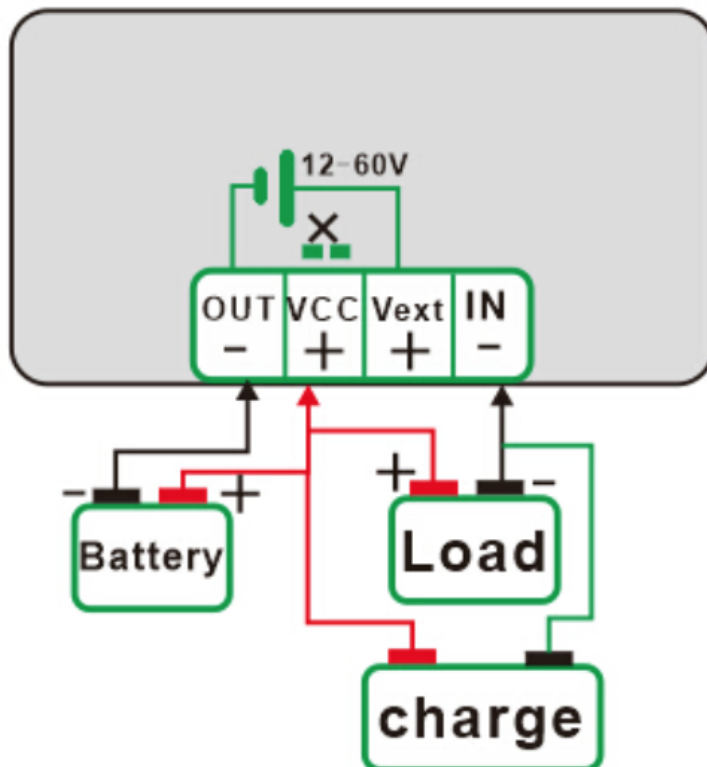
Project		Parameters
Voltage measuring range	Self-powered voltage measurement range	10V~90V
	External power measurement range	0~90V
Current input \ output current measurement range		0~20A
Display method		Color liquid crystal display
Display Resolution	Voltage	0.01V
	Current	0.01A
	Capacity	0.01AH
	Time	1min
Accuracy	Voltage	1% + 2 words
	Current	2% + 5 words
Measurement rate		5 times / sec
	OFT (out protection)	0.01H~99.9H
Dimensions (length × width × height)		79×43×52mm
Mounting hole opening (mm)		76.5*39.2mm

## Wiring

From factory, Vext is connected to VCC.



To power the meter from an independent source, you will need to unsolder a jumper inside the meter. Once done, you can power the meter from an independent source.



## Settings

### Protection Functions

- OVP - Over Voltage Protection
- OPP - Over Power Protection
- OCP - Over Current Protection
- OFT - Over Time Protection
- OAH - Over Ah Protection
- LOP - Under Voltage Protection - ***Does not work with this model since there is no relay***

### To Enable Protection Functions

- navigate to it using the up and down arrows
- click the OK button.

The indicator will turn **green when enabled** and grey when disabled.

### To Set Protection Function Parameters

- navigate to it using the up and down arrows
- click and hold the OK button for about 3 seconds
- adjust the value by using the arrow keys
- press OK to exit

Factory defaults are 000.

### Setting the Capacity of your Battery

- navigate to **OAH** using the up and down arrows
- click and hold the OK button for about 3 seconds
- set the Ah capacity by using the arrow keys
- press OK to exit

### Charge/Discharge Indicator

The OUT arrow will point:

- Right for Charging
- Left for discharging

### Resetting Meter

To reset the meter, move the arrow below LOP and click OK.

### Calibration Mode

Power off the meter, click and hold the ok button and power up the meter.

### Turn Screen off

Move arrow up past VOP and click OK.

## VAC9010H Meter

This model is similar to the SIN9020S meter but has a current transformer for measuring current. This model also has the ability to trigger a relay in the event of low voltage.



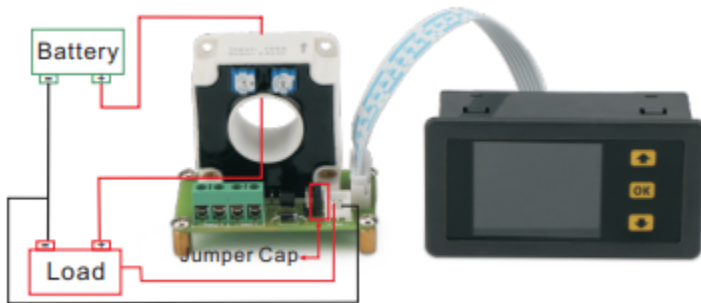
## Wiring

### Connections

All connections to the meter are made from the current capacitor board.

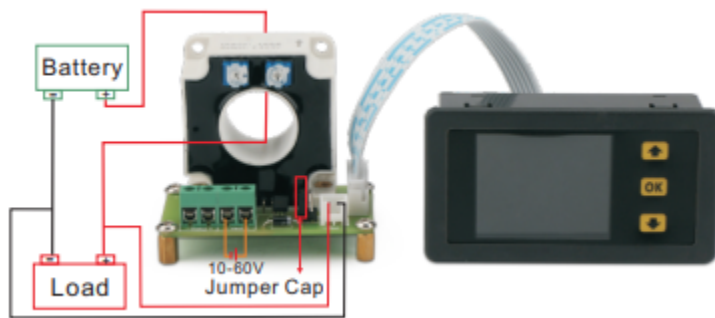
Connection	Description
Bat	Batter Monitoring Connection (10-90v) Meter will get power from this connection when jumper is set to J4.
Relay +/-	Relay Connection
Vext +/-	Power supply connection. When connecting a relay, this voltage will be used to trigger the relay. (10-60v)
Jumper	J3 - Relay or Power Supply Connections J4 - No Relay or Power Supply Connections

### With No Relay or Power Supply Connections



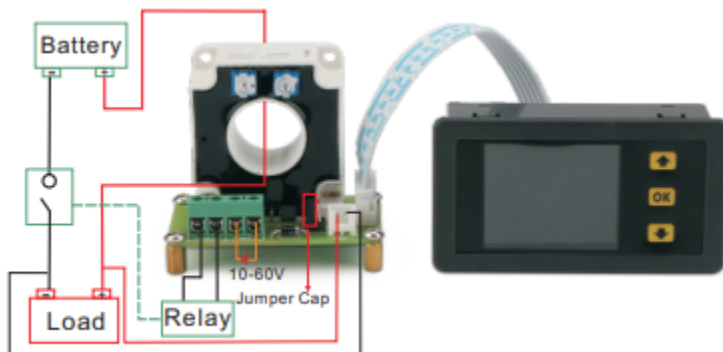
**Note:** Jumper should be set to J4.

### With Independent Meter Power



Note: Jumper should be set to J3.

## With Relay



Note: Jumper should be set to J3.

## References

Reference	URL
Manual for SIN9020S Meter	<a href="#">1AA800569 SIN-9020SEng.pdf</a>
Manual for VAC9010H Meter	<a href="#">C1CRWo45BGS.pdf</a>