

VAM 9020

Voltammeter

User Manual



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VAM9020 voltammeter is a new-type voltammeter which can measure voltage,current,power,charging capacity and time at the same time.The voltammeter adopts two upper and lower groups of LED nixie tubes and display measured data. During use, it can perform flexible switching for displaying different physical quantities. Therefore, the voltammeter is very suitable for monitoring output voltage and current and also is applicable to occasions such as battery charge and discharge.

1. Main feature:

- 1、 Dual display for voltage and current, and availability for switching display power, charge capacity and time.
- 2、 Flexible online calibration function, you can calibrate the voltage and current value by yourself.
- 3、 4-bit LED nixie tube, 3-bit measured values and one-bit unit.

2. Technical indexes

- 1、 Two wire system input voltage range: 10V ~ 90V

Three wire system input voltage range: 0 ~ 90V

- 2、 Output current: 0 ~ 20A
- 3、 Display mode: 4-bit LED nixie tube, 3-bit measured values and one-bit unit
- 4、 Display resolution :0.01V, 0.01A, 0.01W, 0.01AH, 0.01H
- 5、 Voltage accuracy: $\pm 1\% + 2$ bytes
- 6、 Current accuracy: $\pm 2\% + 5$ bytes
- 7、 Measuring rate: 5 times/s
- 8、 Size(mm):79*43*25
- 9、 Installing hole (mm):76.5*39.2

3. The instrument structure and connection mode

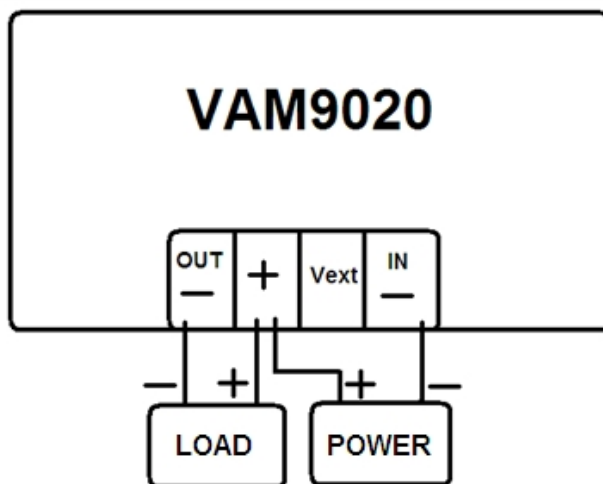
In front of instrument ,there are three operate keys, two 4-bit LED nixie tubes and operating tips, it is easy and convenient to use.

On the back of instrument there are four terminals , OUT—、 +、 Vext、 IN—,the+ is

the public terminal of IN + and OUT + , Vext is the positive pole of an external power supply when use three-wire system.

We can choose two-wire, three-wire system to use it. Two wire system can connect to the meter circuit directly , three wire system needs an external power supply for the meter power supply.

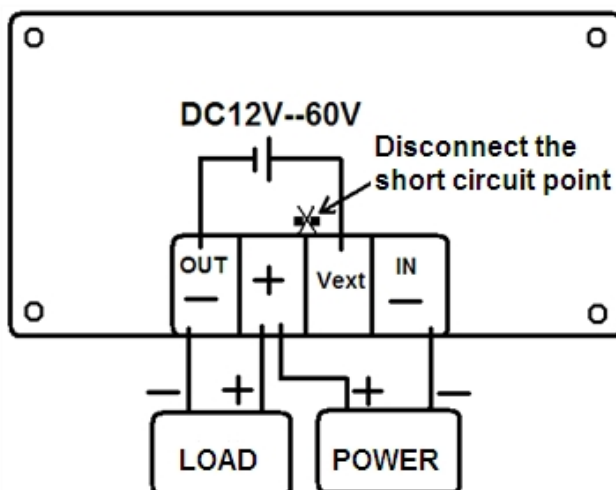
Two wire system connection diagram and the method:



Two wire system wiring diagram

The positive of the power and load connect to + , the negative pole of power connect to IN - ,the negative pole of load connect to OUT-.

Three wire system connection diagram and the method:





Three wire system wiring diagram

Open the back cover, as shown above, use soldering iron to disconnect the short-circuit point , external power supply use DC12V ~ 60V , Vext connect the positive pole of the external power supply, the OUT - connect the negative pole of the external power supply.

The positive of the power and load connect to + , the negative pole of power connect to IN - ,the negative pole of load connect to OUT-.



4. Instructions



- 1、 Correctly connect input/output wires.
- 2、 Make sure that the input voltage is within the scope of the instrument, after power on, the above nixie tube display voltage value in default, the below nixie tube display current in default.
- 3、 Press the  button to select the above nixie tube display , press the  button to select the below nixie tube display , it is easily to switch display the voltage (V), current (A), power (P), capacitance (C),and time (H).
- 4、 You can enter the debug mode in the following conditions:
 - ① When the measure result has a certain errors, need to be calibrated.
 - ② When the parameters is confused, need to restore factory settings.



The method of enter the debug mode : In the normal state, long press the < OUT >key, when the the upper row of digital tube display "0-U ", it means that it has enter the debug mode, short press < OUT > key again , the upper row of Nixie tubes circularly change among 0 - U, 1 -C, 2 - ES and 3 - r,indicating that enter the different setting functions.



The method of quit the debug mode: In the debug mode ,long press < OUT > button.

5、 The functions of debug mode

- ① "0 - U" is calibrate the measure value of voltage, the digital tube display the voltage value is the current measure value, we can choose two points of voltage to calibrate the voltage, high voltage point generally take 32V, low voltage point generally take 12 V, the boundary standard point of high and low is 20V, above 20V is calibrate the high point voltage in default, less than 20V is calibrate the low point voltage in default, at this time we can compare to standard voltmeter,press  key to increase the voltage measure, press  key to decrease the voltage measure, the voltage of the two points mutually influence, and can be consistent with the voltages measured by the standard voltmeter through 2-3 times of regulation.
- ② "1 - C" is calibrate the measure value of current , the digital tube display the current

value is the current measure value, we can choose two points of current value to calibrate the current, high current point usually take 3 A, low current point usually take 0.1 A , the boundary standard point of high and low is 2A, above 2A is calibrate the high point current in default, less than 2A is calibrate the low point current in default, at this time we can compare to standard ampere-meter,press  key to increase the current measure, press  key to decrease the current measure, the current of the two points mutually influence, and can be consistent with the currents measured by the standard ampere-meter through 2-3 times of regulation.

③ "2 - ES" is save parameters, after calibrating the voltage or the current , need to save parameters, adjusting to the "2 - ES", the nixie tube display is "-n-"in default, indicating that not save the parameters, you can press  or  adjust to display "- y -", then press < OUT > will save parameters and automatically exit the debug mode.

④ "3 - r" is to restore factory settings, if the voltage and current value are confused or want to cancel the protection parameters immediately ,press  or  adjust to display "- y -",then press< OUT > will restore factory setting.

5. Announcements

1、 Don't over the voltage and current range of the instrument, or it will damage the instrument.

2、 Pay attention to the positive and negative polarity

Shipping list:

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2、 User Manual (PDF electronic format)	1