

DC Voltage Ammeter Dual Digital

Product Features:

1. This dual display voltage and current meter is compact and can simultaneously display voltage and current on the same screen;
2. The wiring method of this table is flexible, which can share power with the tested equipment or use independent power supply. Simply change the wiring!
3. Test voltage 0-100V and 200V require additional power supply, with a power supply voltage range of DC4-33V;
4. The maximum power supply voltage cannot exceed 33V, otherwise it will burn out and cannot be repaired;
5. The measurement range of current is optional to meet the needs of different customers;
6. The working current is very small, only about 10mA;

Attention: This type of electrical instrument needs to be installed by professionals who understand electrical and electronic technology. For ordinary consumers who are unsure of the installation and use, please be cautious when purchasing!

Technical Parameter:

current range	resolution ratio	current range	resolution ratio
1A(999mA)	1mA	50A/100A	0.1A
2A、 5A、 10A	0.01A	100A above	1A
Voltage measurement range	0.0V-100V 200V *	Installation dimensions	Suggest 46×27mm, L×W
Current measurement range	0-999mA, 0-10A, 0-50A,0-100A,0-200a optional	External opening	48×29×22mm, L×W×H
Power supply range	DC4-28V *	Lead wire length	150mm
Voltage error	1% (±1 byte)	working temperature	-10~+65 degree
Current error	1% (±1 byte)	Working humidity	10~80% (No condensation)
Specification of external shunt	75mV *	Working air pressure	80~106kPa
Working current	<10mA	Sunshine exposure	No direct exposure
Refresh rate	≥500mS/Time	Net weight	10A:25g 50A:18g
Display method	Double triple digit 0.28" LED Nixie tube	Gross weight	10A:30g 50A:22g
Display Color	Red+Red, Red+Blue optional *	Place of Origin	China

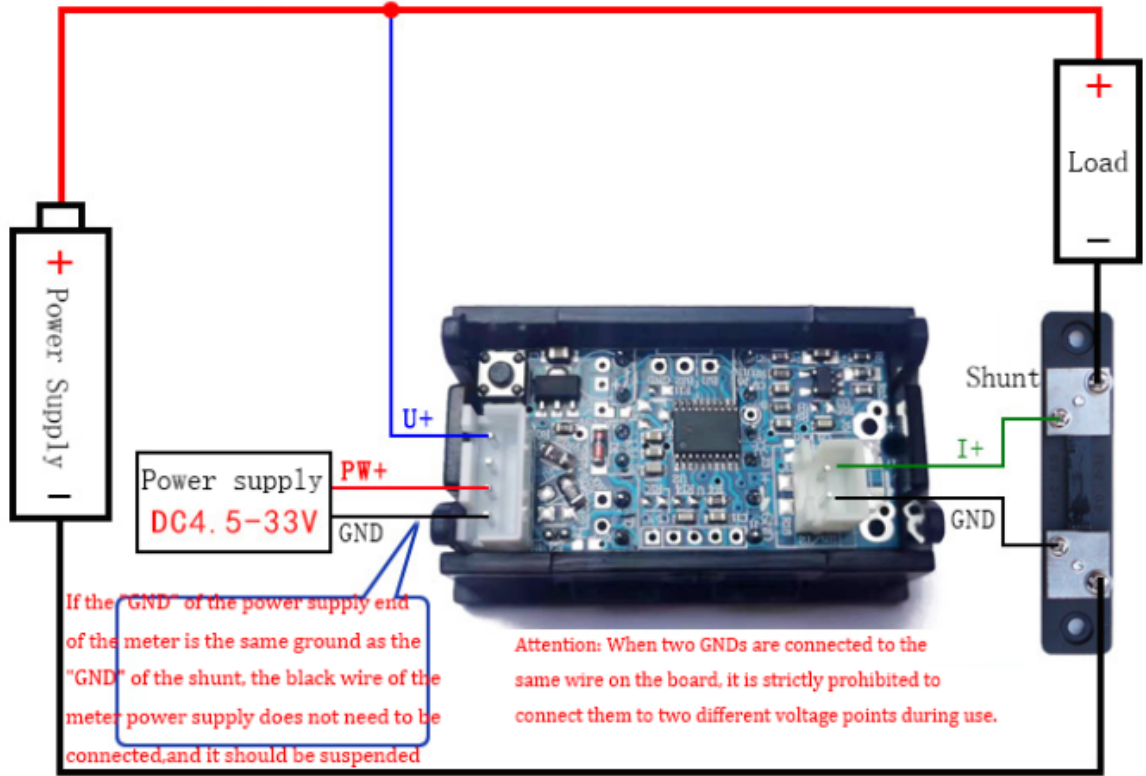
The above parameters with "*" can be adjusted according to user needs.

Attention:

- 1、 Usually, the minimum measurable current value is 2% of the selected range. When selecting a current range (such as 1A, 5A... 100A, 200A, etc.), please try to choose a range that is close to the measured current value, so as to achieve the best measurement accuracy!
- 2、 A meter with a measuring range of 50A or above must be connected to a shunt to measure current regardless of whether the measured current is less than 10A! Otherwise, it will burn the meter head.
- 3、 The current measurement can only connect terminal GND and terminal I+ in series between the negative pole of the power supply and the negative pole of the load.
- 4、 The power supply voltage of the meter must be 4.5-28V. If it exceeds 28V, independent power supply is required. Please wire according to the diagram, and the four points of the shunt cannot be changed arbitrarily!!!

Wiring diagram:

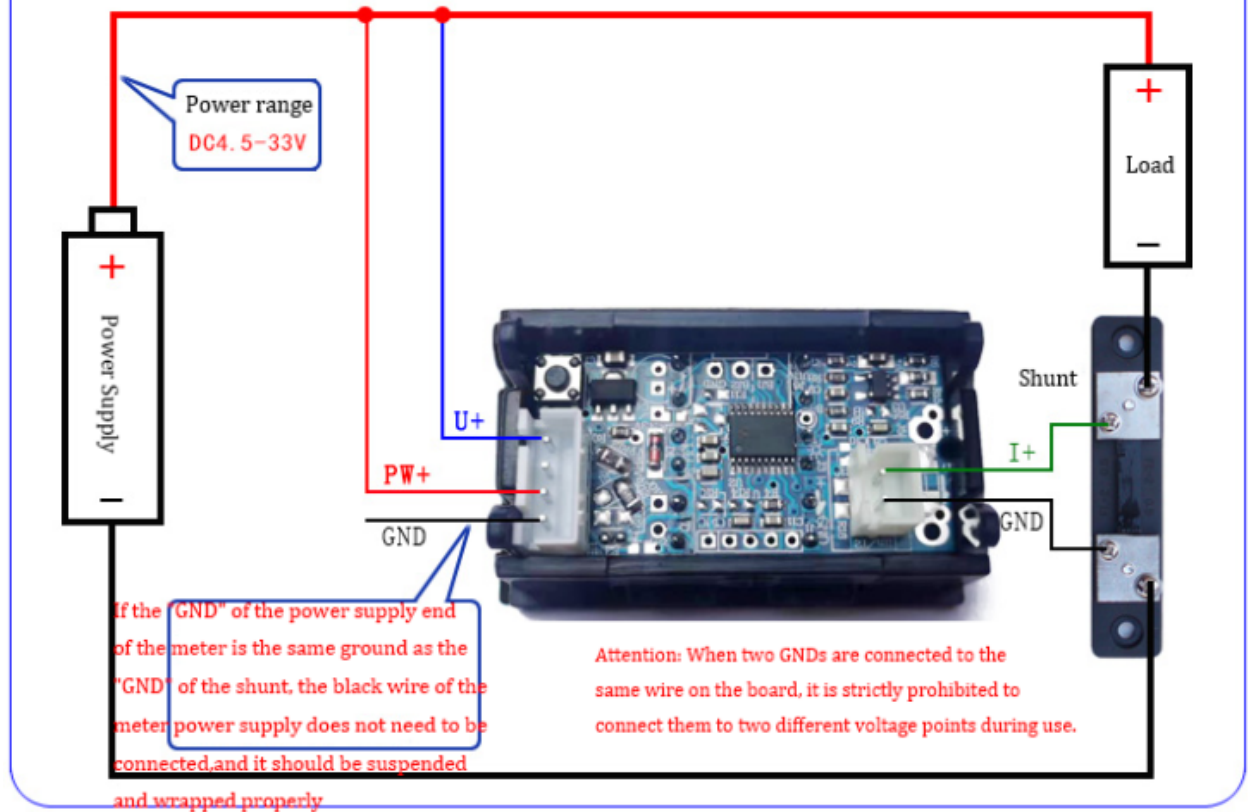
Schematic diagram of independent power supply for external shunt dual display meter



If the "GND" of the power supply end of the meter is the same ground as the "GND" of the shunt, the black wire of the meter power supply does not need to be connected, and it should be suspended and wrapped properly

Attention: When two GNDs are connected to the same wire on the board, it is strictly prohibited to connect them to two different voltage points during use.

二、 Schematic diagram of direct power supply for external shunt dual display meter



Wiring steps:

一、 10A and below current range with built-in shunt wiring process:

- 1、 When wiring, handle the disconnected wires properly and avoid touching other places;
- 2、 Connect the wire of terminal GND to the negative pole of the power supply according to the current direction, and connect the wire of terminal I+ to the negative pole of the load, which is connected in series to the negative pole of the tested system;
- 3、 Connect the thin blue wire to the positive pole of the measured system;
- 4、 Connect the thin red wire of the power supply to the appropriate positive pole of the power supply (if the voltage between the wire and the terminal GND is less than 33V, it is recommended to connect it to around 12V. At the same time, wrap the thin black wire with insulating tape and avoid touching other places to avoid short circuits);
- 5、 The above steps 1-4 are suitable for use in common ground situations; For independent power supply situations, the red and black power supply wires are connected to the positive and negative poles of the power supply respectively (the power supply voltage is less than 33, it is recommended to connect around 12V);

二、 The current range above 10A requires an external shunt wiring process:

- 1、 When wiring, handle the disconnected wires properly and avoid touching other places;
- 2、 Connect the shunt in series to the negative electrode of the measured system (the shunt itself does not distinguish direction, and the wiring is fixed to the two large screw holes on the left and right sides of the shunt);

- 3、Screw the wire of terminal GND and the wire of terminal I+ onto the two small screws of the shunt according to the current direction;
- 4、Connect the thin blue wire to the positive pole of the measured system;
- 5、Connect the power supply red wire to the appropriate positive pole of the power supply (the voltage between the wire and the terminal GND wire is less than 33V, and it is recommended to connect it to around 12V. At the same time, wrap the thin black wire with insulating tape and avoid touching other places to avoid short circuits);
- 6、The above 1-5 steps are suitable for use in common ground situations; For independent power supply situations, the red and black power supply wires are connected to the positive and negative poles of the power supply respectively (the power supply voltage is less than 33V, it is recommended to connect around 12V).

FAQ:

- 1、Question: The voltage display is normal, while the current display is 0.00 or 0.0?
Answer: Ensure that the wire of terminal GND is connected to the negative pole of the power supply, and the wire of terminal I+ is connected to the negative pole of the load (the wire of terminal GND with a shunt and the wire of terminal I+ are connected to the corresponding small screw). (Note that the wiring for discharge and charging is different, see the concept of load and power supply in the end). (The meter head uses the original chip and undergoes very strict testing and calibration before leaving the factory, ensuring 100% no quality issues. When encountering a current display of 0, 99.99% of the wiring is incorrect. Please be patient and carefully check the wiring.)
- 2、Question: Is the current display inaccurate?
Answer: If it is a direct power supply or an independent power supply that shares ground with the device power supply, simply disconnect the thin black wire to achieve accurate results.
- 3、Question: Does the current display three horizontal bars "- -"?
Answer: The display of three horizontal bars "- -" indicates that the current collection line is not connected or exceeds the range, usually due to a mismatch between the measured current and the range of the meter or incorrect wiring method.
- 4、Does the power supply not display or does the display jump frequently?
Answer: All AC rectified electricity must be connected to a electrolytic capacitor of more than 100uF for filtering before supplying power to the meter head.

Concept of load and power supply

When discharging: batteries, switching power supplies, and transformers are the power sources, while resistors, lamps, motors, and electrical equipment are the loads.

When charging: The charger, generator, and solar energy are the power sources, while the charging pool and battery are the loads.

Main Menu	First level submenu	Secondary submenu	Default value	remarks
Upper screen flashing display (Indicates the selection of voltage regulation)	1-U (Voltage value fine adjustment correction)			When there is a deviation in the displayed voltage value, it can be adjusted within a certain range
	2-O (Restore voltage value to factory settings)	NO (Do not restore factory settings)	NO	Select YES and restore the voltage parameters to the factory settings
		YES (Restore factory settings)		
Blinking display on the lower screen (Indicates the selection of current regulation)	1-A (Current value fine adjustment correction)			When there is a deviation in the displayed current value, it can be adjusted within a certain range
	2-E (Current value calibration zero point)			Due to device aging/environmental temperature impact, the error in measuring small currents in the module increases, requiring calibration of the zero point
	3-O (Current value restored to factory settings)	NO (Do not restore factory settings)	NO	Select YES and restore the current parameters to the factory settings
YES (Restore factory settings)				

notes:

- 1、 All key operations in the table are divided into long press and short press; Long press: Press the button for about 3 seconds to release, short press: Press the button for 1 second to release;
- 2、 Long press: Enter the next menu level, or increase or decrease the numerical value;
- 3、 Short press: switch between menu items at the same level;
- 4、 No key operation within 5 seconds: flashing to save and automatically return to the previous menu level。

Parameter Adjustment Menu Description

Parameter adjustment operation instructions:

- **Button function:**

All key operations in the table are divided into long press and short press; Long press - press the button for about 3 seconds to release, short press - press the button for 1 second to release

- **Setting mode:**

- In normal mode, press and hold the button for 3 seconds to enter the setting mode, and the upper screen will flash. At this time, release the button and then "short press the button" to cycle the display: the lower screen will flash

- ◆ **Upper screen flashing display:** Indicates the selection of voltage regulation

- ◆ **Blinking display on the lower screen:** Indicates the selection of current regulation

- **Voltage regulation settings:**

- In the setting mode, press the button to switch to the flashing display on the upper screen, Long press the button to enter the voltage regulation setting

- At this point, release the button and then "briefly press the button" to cycle display: 1-U 2-O

- ◆ **1-U:** Represents voltage value fine-tuning correction

- ◆ **2-O:** Representative voltage value restored to factory settings

- **Voltage value fine adjustment correction:**

- Under the voltage adjustment setting, when pressing the button to switch to display 1-U, long press the button to enter the voltage value fine adjustment correction setting

- ◆ At this point, release the button and then "long press the button" to increase the value upwards. After releasing the button, "long press the button" again to decrease the value downwards and repeatedly adjust to the corresponding voltage value

- ◆ Wait for the screen to flash to save the settings and return to the previous menu level

- **Restore voltage value to factory settings:**

- Under the voltage regulation setting, press and hold the button to switch to display 2-O, and then press and hold the button to enter the factory reset selection

- At this point, release the button and then "short press the button" to cycle through the display: NO_ YES

- ◆ NO: Represents not restoring factory settings

- ◆ YES: Represents restoring factory settings

- ◆ Default Display NO

- ◆ When switching to the corresponding parameters, release the button and wait for the screen to flash to save and return to the previous menu level

Note: Current parameter adjustment refers to voltage parameter adjustment,

- **Current value calibration zero point:**

■ When unloaded, under the current adjustment setting, press and hold the button to switch to display 2-E, and then enter the zero point setting for current value calibration

◆ At this point, release the button and then "press and hold the button". At this point, the zero point of the current value is calibrated and displayed as 0.0 or 0.00

◆ Wait for the screen to flash to save the settings and return to the previous menu level