

# Instructions for USB Tester with Full Colour Display

-Model: UM24/UM24C

Dear Customer,

Thank you for purchasing this Full Colour USB Tester from Ruideng Technology Co. Ltd. Prior to using this product we recommended that you briefly familiarize yourself with these instructions in order to ensure the correct operation and use of the device. We also advise that you keep these instructions in a safe place for future reference as may be needed.



## Technical Parameters:

Model: UM24 /UM24C

Voltage measurement range: 4.50-24.00V

Current measurement range: 0.000-3.000A

Capacity accumulation range: 0-99999mAh

Energy accumulation range: 0-99999mWh

Load impedance range: 1.5-9999.9Ω

Temperature range: -10°C~100°C/0°F~200°F

Screen brightness setting: Levels 0-5

Voltage graphing range: 04.5-24.0V

Dimensions: 71.2mmx31.8mmx11.3mm

Display screen: 1.44 Inch color LCD display

Product weight:20.75g

Voltage measurement resolution: 0.01V

Current measurement resolution: 0.001A

Voltage measurement accuracy: ± (0.2% + 1digit)

Current measurement accuracy: ±(0.8%+3 digits)

Time measurement range: 0-99h59min59s

Temperature measurement error: ± 3°C / ± 6°F

Auto screen off time: 1-9 minutes

Current graphing range: 0.00A-3.00A

Quick charge recognition mode: QC2.0 QC3.0

Refresh rate: 2Hz

## Function Interfaces



Measurement Main Interface



Quick Charge Recognition Interface



Data Recording Interface



Data Connection Cable Impedance Measurement Interface

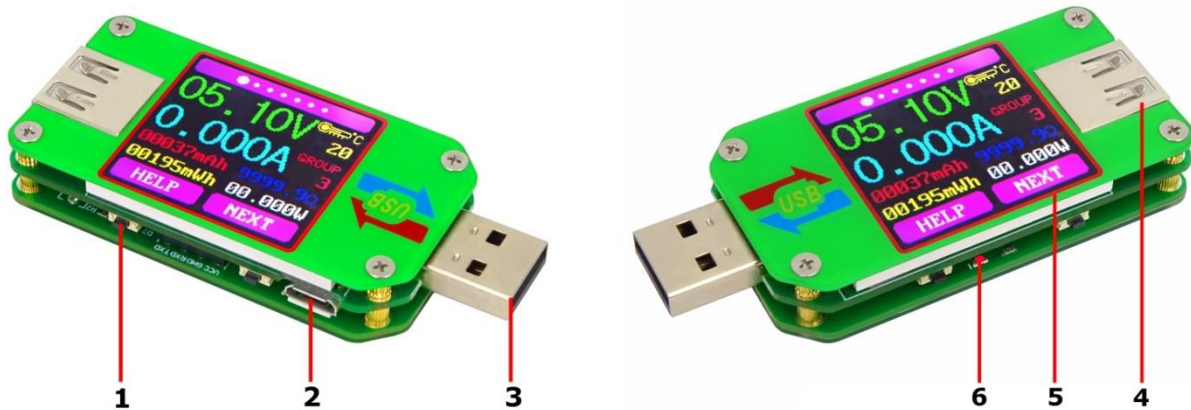


Voltage Graphing Interface

Current Graphing interface

Settings Interface

## Device Layout



- 1: Multifunction buttons (4)
- 2: Micro USB Port
- 3: USB A Male Port
- 4: USB A Female Port
- 5: 1.44 Inch Color LCD Screen

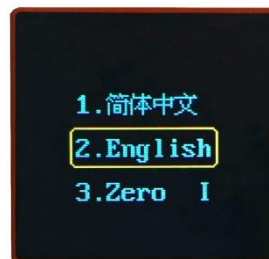
6: Bluetooth Indicator Light: When connected to the host computer control software, the Bluetooth indicator changes from flashing to steady state. When connecting, the Bluetooth icon is displayed on the screen. (Bluetooth communication version only).

## Operating Instructions

When the unit is first powered on the welcome screen is displayed followed shortly by the main interface screen.

**Hidden interface:** Pressing any button whilst powering on the module will display three options. Option 1 selects the Chinese Interface and option 2 selects the English interface.

The third option is to zero the Current reading (Ensure there is no load connected to the unit). Holding the button will step through the 3 options. Release the button at the desired selection. Pressing and holding the button after stepping to the third option will exit the hidden interface.



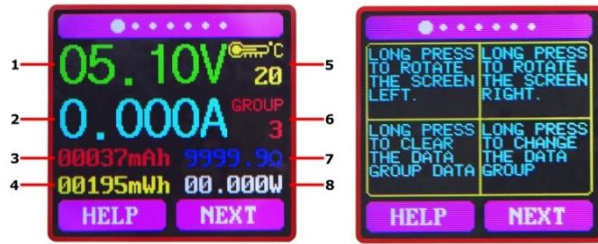
Hidden interface



Welcome interface

**Interface 1: Main Measurement Interface.**

- 1: Voltage measurement.
- 2: Current measurement.
- 3: Accumulated Capacity.
- 4: Accumulated Energy.
- 5: Temperature.
- 6: Number of the Data Group in use.
- 7: Load equivalent impedance.
- 8: Power measurement.



Press the "Help" button to enter the interface as shown above:

Press and hold the "Next" button to switch Data Group. The USB tester can provide a total of 10 groups of data to save and view. These are numbered 0-9.

With Data Groups 1-9 selected the current mAh and mWh are saved after power off. They will continue accumulating the next time the tester is powered on. When the data group selected is 0 then the current value of mAh and mWh will be temporarily saved at power off. When the device is next powered on these values will be recalled and will begin flashing. When the accumulated mAh exceeds 1 mAh, the previous data will be cleared and accumulation will restart.

With a Data Group selected, press and hold the "Help" button to clear the mAh and mWh.

Press "Next" to switch to the Quick Charge Recognition Interface.

**Interface 2: Quick Charge Recognition Interface.**

- 9: D +: (DP) data positive signal level.
- 10: D -: (DM), data negative signal level.
- 11: Mode display: The product will automatically identify a device with a supported fast charging mode. At this time the device supports the QC2.0 and QC3.0 mode only.



Press "Next" to switch to the Data Recording Interface

**Interface 3: Data Recording Interface**

- 12: Time display: The total accumulated recording time.
- 13: Low Current trigger value.
- REC: recording status indicator. 'REC' displayed in red indicates that recording is stopped. 'REC' displayed in green indicates that recording is in progress.



After power on, when the current flowing is greater than the Low Current trigger value. The system automatically begins to record the accumulated capacity, energy, and time elapsed. The 'REC' indicator will change from red to green.

To set the Low Current trigger value, press and hold the "Next" button to highlight the value then press the 'Next' button to adjust the value as required. The value can be set anywhere between

0.01A- and 0.30A. (10mA to 300mA).

Press "Next" button to switch to the Data Connection Cable impedance Measurement Interface.

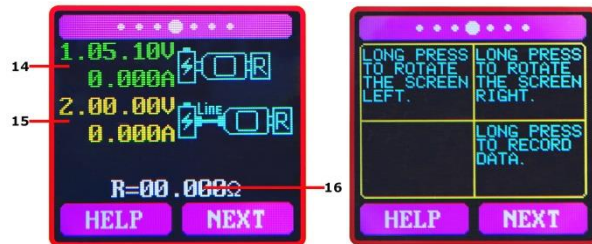
#### Interface 4: Data Connection Cable Impedance Measurement Interface.

The Tester can be used to measure the resistance of a data connection cable.

14: 1. USB Tester directly connected to the power supply with Voltage and Current values displayed.

15: 2.USB Tester connected via a data connection cable with Voltage and Current values displayed.

16: R: Data Connection Cable resistance.



#### Measurement procedure:

First, connect the USB Tester directly to the power supply and adjust the appropriate load current (recommended value 1A). Press and hold the "Next" button to begin recording data. The indicator prompt will stop flashing.

Second, unplug the USB Tester and then reconnect it to the power supply via the data connection cable and adjust the load current to the same value as in the first step. Press and hold the "Next" button to begin recording data. The indicator prompt stops flashing and the Data Connection Cable resistance measurement test is completed and the value displayed.

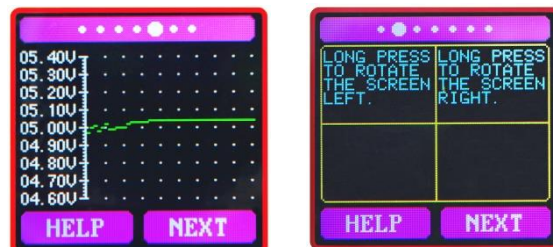
**Note: If during the second step the screen turns black, this indicates that the voltage difference is too high and the tester will enter the 4.5V power-down state. The load current needs to be reduced. Then re-start the measurement from the first step. After the Data Connection Cable resistance test is completed, the Tester needs to be powered off and then on again to resume measurement.**

Press the "Next" button to switch to the voltage graphing interface.

#### Interface 5: Voltage Graphing Interface.

This interface displays the voltage measurement over time in the 4.5V-24.0V range and will automatically adjust the displayed range in real time to account for voltage fluctuations.

Press the "Next" button to switch to the Current graphing interface.



#### Interface 6: Current graphing Interface.

This interface displays the Current



measurement over time in the 0.00A-3.00A range and will automatically adjust the displayed range in real-time to account for Current fluctuations.

Press the "Next" button to switch to the Settings interface:

### Interface 7: Settings Interface.

17: Auto screen off time

18: Screen brightness

19: Temperature display C /F

Press and hold the "Next" button to step

through the options of auto screen off time,

brightness level and temperature display units. Stop on the value you wish to change then press

the "Next" button to change the setting. For auto screen off time setting press 'Next' to

repeatedly step through the 10 options from 0 to 9 minutes. For the screen brightness setting,

press 'Next' to repeatedly step through the 6 options from 0 to 5 where 0 is the lowest brightness

level and 5 is the highest. For the temperature display units, pressing the 'Next' button toggles

the setting between C and F. To exit the Settings menu press and hold the 'Next' button.

