Battery Internal Resistance

Tester Specifications (HT-RT01)

Heltec Energy

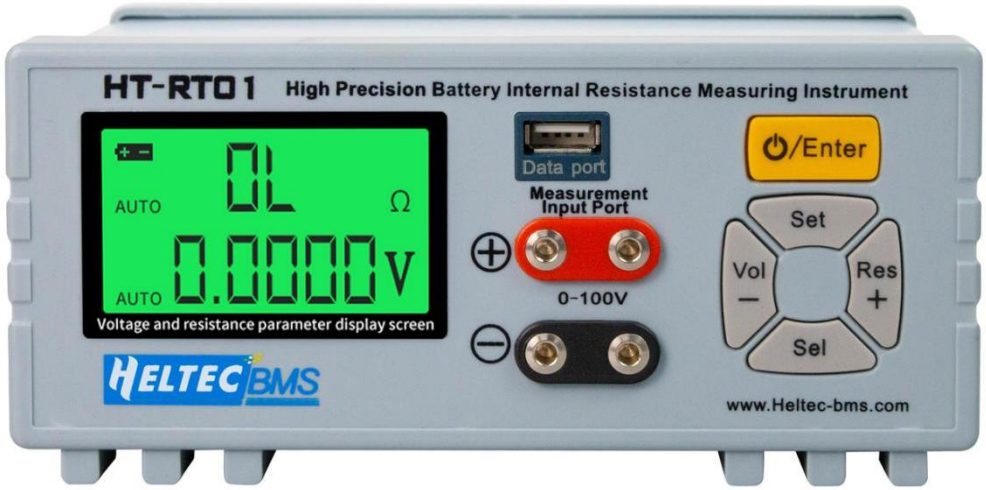
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1. Overview

This instrument adopts the high-performance single-crystal microcomputer chip imported from ST Microelectronics, combined with the American “Microchip” high-resolution A/D conversion chip as the measurement control core, and the precise 1.000KHZ AC positive current synthesized by the phase-locked loop is used as measurement signal source apply on the tested element. The generated weak voltage drop signal is processed by high-precision operational amplifier, and the corresponding internal resistance value is analyzed by intelligent digital filter. Finally, it is displayed on large screen dot matrix LCD.

The instrument has the advantages of **high precision, automatic file selection, automatic polarity discrimination, fast measurement and wide measurement range.**

2. Product Appearance



Battery Internal Resistance Tester High Precision Measuring Instrument



3. Product Dimension



*Note: Please refer to the actual size. There is a slight error in manual measurement.

4. Product Parameters

Item	Parameter
Power Supply	AC110V/AC220V
Supply Current	50mA~100mA
Signal Source Frequency	AC1KHZ
Signal Source Current	2mΩ/20mΩ - 50mA
	200mΩ/2Ω - 5mA
	20Ω/200Ω -0.5mA
Measurement Parameter	① ACR② DCV
Measuring Range	R：0.0001mΩ ~ 200Ω V：0.0001V ~ ±100VDC
Resolution	0.001mΩ 0.001V
Precision	R：±0.5% V：±0.5%
Test Pace	5 times /S
Range	Automatic Switching
Measuring Input	Balance System
Measuring Probes	LCR Kelvin 4-wire clamp
USB Port	Can be connected to computer
Display	LCD
Net Weight of Tester (kg)	0.6
Net Weight of Tester & Accessories (kg)	1.1
Packing Weight (kg)	2.1
Product Dimension (mm)	180*190*80
Package Dimension (mm)	340*230*130

5. Application

a. It can measure internal resistance and voltage of **ternary lithium, lithium iron phosphate, lead acid, lithium ion, lithium polymer, alkaline, dry battery, nickel-metal hydride, nickel-cadmium, and button batteries, etc.** Quickly

screen and match all kinds of batteries and detect battery performance.

b. R&D and quality testing for manufacturers of lithium batteries, nickel batteries, polymer soft-pack lithium batteries and battery packs. Purchased batteries quality and maintenance testing for stores.

6. Features

- Microchip Technology high-resolution 18-bit AD conversion chip to ensure accurate measurement;
- Double 5-digit display, the highest resolution value of measurement is 0.1μΩ/0.1mv, Fine and high precision;
- Automatic multi-unit switching, covering a wide range of measurement needs;
- Automatic polarity judgment and display, no need to distinguish battery polarity;
- Balanced input Kelvin four-wire measuring probe, high anti-interference structure;
- 1KHZ AC current measurement method, high accuracy;
- Suitable for various battery/pack measurements below 100V;
- Equipped with computer serial connection terminal, expanded instrument measurement and analysis function;

7. Packing List



HT-RT01 Tester x1



LCR Kelvin 4-wire clamp x1



Test fixture x1



USB data cable x1

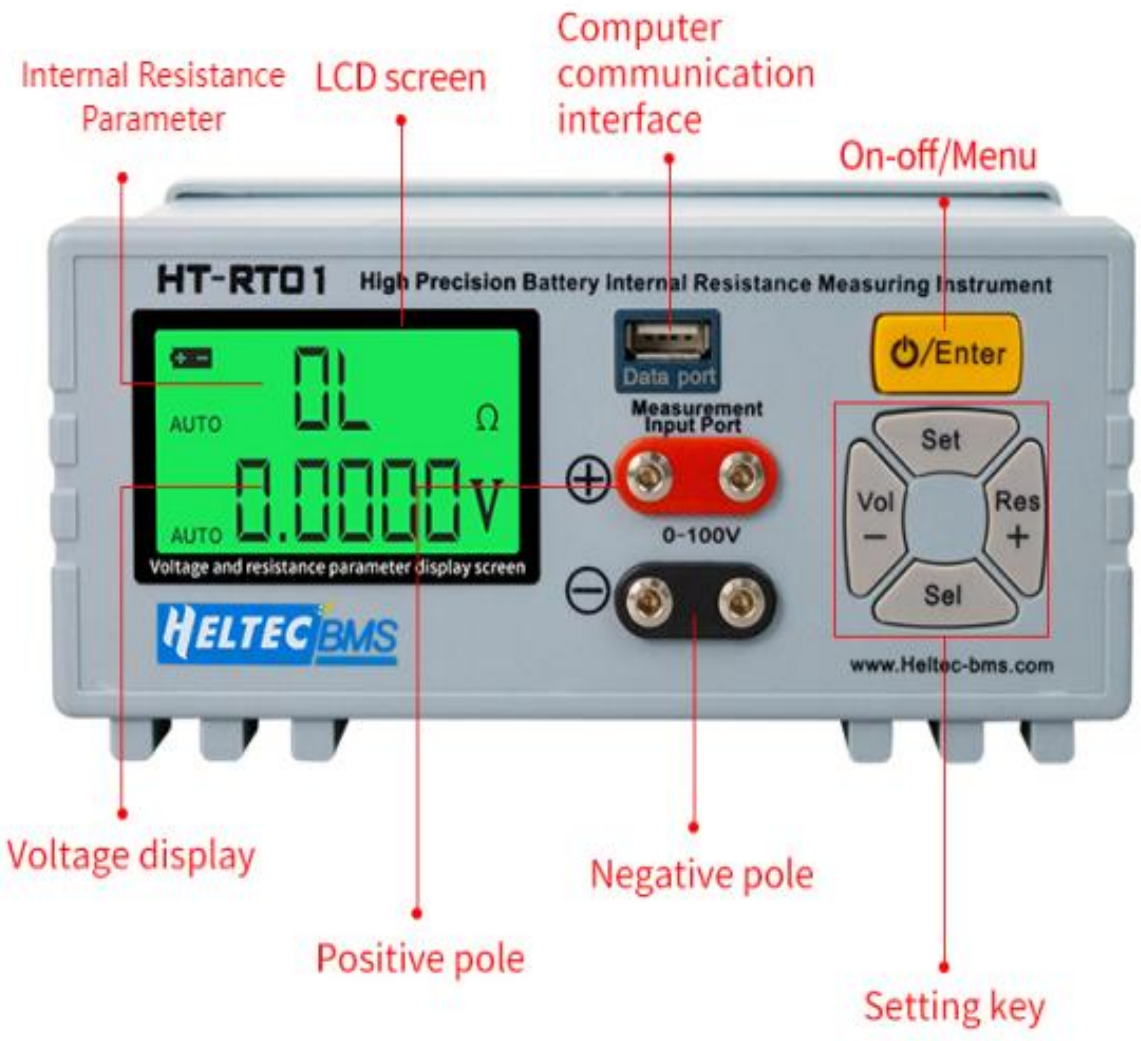


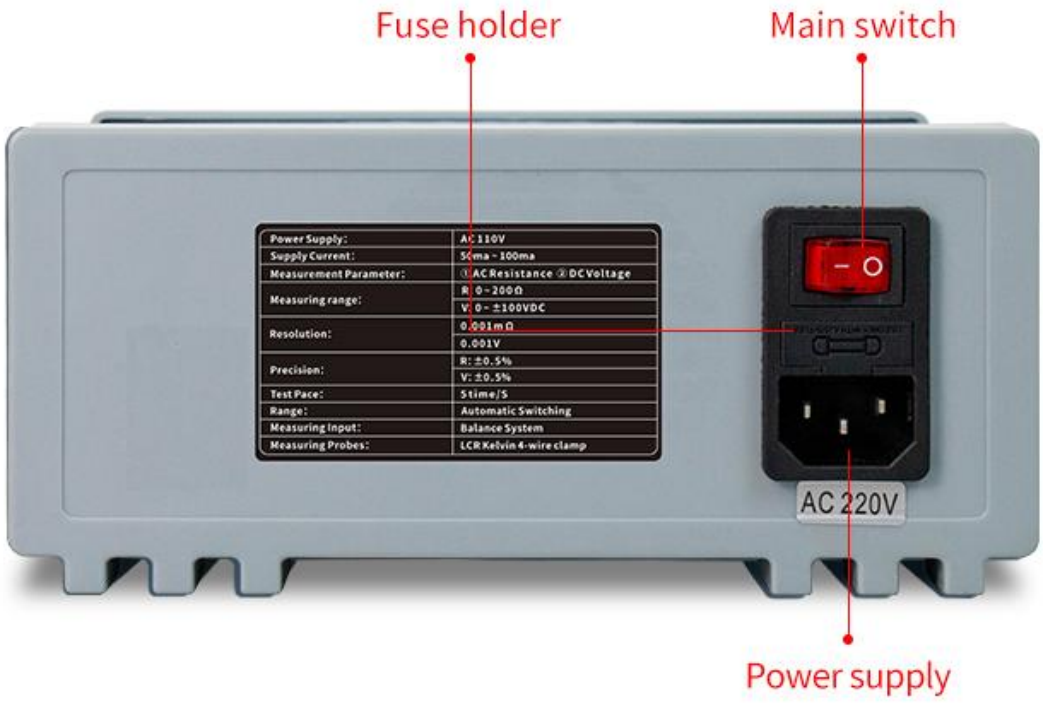
Power supply cord x1



Manual x1

8. Product Diagram



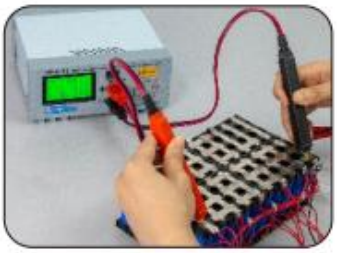


9. Example of Test Scope



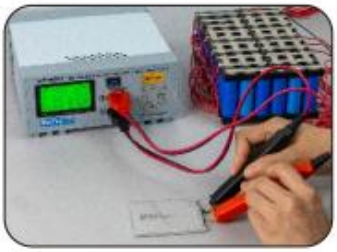
Measure the lithium iron phosphate battery:

IR:0.273mΩ,
V:3.737V.



Measure the 20S 48V 18650 battery pack:

IR:0.4942Ω,
V:36.906V.



Measure the battery of Iphone:

IR:37.22mΩ,
V:3.81V.



Measure the 18650 battery:

IR:40.17mΩ,
V:3.789V.



Measure the Photovoltaic panel



Measure the electric car batteries