

RESISTIVITY MEASURING SYSTEM

Model RCDZ-2

Instruction Manual



Part No.: 120-220

(Zhejiang, CHINA)

...Quality is Everything...

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1. Document Conventions

The following icons are used as necessary in this instruction manual.



NOTE. Notes emphasize additional information that may be useful to the reader.



CAUTION. Describes a situation or practice that requires operator awareness or action in order to avoid undesirable consequences



MANDATORY ACTION. Gives directions that, if not observed, could result in loss of data or in damage to equipment.



WARNING! Describes an unsafe condition or practice that if not corrected, could result in personal injury or threat to health.

ELECTRICITY WARNING! Alerts the operator that there is risk of electric shock



HOT SURFACE! Alerts the operator that there is a hot surface and that there is risk of getting burned if the surface is touched



EXPLOSION RISK! Alerts the operator that there is risk of explosion

Safety

Safe laboratory practices and procedures should be observed while operating and maintaining the constant pressure constant flow syringe pump

Battery Safety



The lithium battery can explode if they are stored in a hot location, charged improperly, or if the terminals contact metal, creating a short circuit

2. Introduction

The Rock Core DC Resistance Measurement Instrument is the first domestic device equipped with touch functionality and a color LCD display for DC resistance testing. Its maximum accuracy range is 0.01%, which can meet general resistance measurement requirements, especially for resistances that significantly vary with temperature, providing better testing results. It also features statistical analysis functions, allowing for statistical analysis of a large amount of measurement data.

The Rock Core DC Resistance Measurement Instrument is a powerful tool for resistance design, inspection, quality control, and production testing. Its ultra-high-speed testing capability makes it suitable for point-checking machines on automated production lines. Its various output display data and comparison modes can adapt to the different standard requirements of resistance manufacturers. With its excellent performance, the product can perform various tests according to commercial and military standards, such as IEC and MIL standards.

The Rock Resistivity Measurement Instrument, using a high-pressure resistivity core holder and a resistivity meter, measures the resistivity of cores under different water saturation levels, and plots the relationship curve between saturation and resistivity index.

The instrument's intelligent integrated system automatically collects and calculates core water saturation and resistivity index.

3. Features

Performance Characteristics

- **Resistance Range:** $0.1\mu\Omega$ - $110\text{ M}\Omega$
- **Maximum Resistance Accuracy:** 0.01%, Resistance Resolution: $0.1\mu\Omega$
- **Basic Temperature Accuracy:** 0.1°C
- **Maximum Sampling Rate:** Approximately 100 times/second
- **4.3-inch 24-color Touch LCD Screen:** 480x272 resolution
- **Intelligent Detection of Testing Status Faults**
- **Multiple Test Function Combinations:** R, LPR, T, etc.
- **Low Voltage Test Mode:** Effectively protects the test object
- **Temperature Conversion Function**
- **Temperature Compensation Function (TC)**
- **Offset Voltage Compensation Function (OVC)**
- **User Self-Calibration Function (O ADT)**
- **Statistical Function:** Provides CpK, Cp, and other statistics
- **Screenshot and Data Recording Functions**
- **Simultaneous Output of 10-Stage Comparison Results:**
(Over limit, qualified, and beep alert)
- **Automatic Software Upgrades via USB HOST**
- **Compliance with LXIC Standards**
- **Handler Interface for Online Operation**

4. Specifications

Technical Parameters

1. Rock Insulation Holder System

Clamping Rock Specifications:

Diameter 1", Length 0-4", with axial loading to clamp the rock.

2. Resistance Tester System

Display	400 X 272 resolution RGB 24-bit true color TFT LCD touch screen		
Reading Digits	5 ½ digits		
Measurement Range	0.1μΩ --110MΩ		
Resistance Range	Current	Resolution	Accuracy Rd%+FS%
20 mΩ	1A	0.1μΩ	0.10+0.025
200mΩ		1μΩ	0.35+0.030
2Ω	100mA	10μΩ	0.035+0.010
20Ω	10mA	100μΩ	0.025+0.008
200Ω		1mΩ	0.01+0.002
2kΩ	1mA	10mΩ	0.01+0.002
20kΩ	100μA	100mΩ	0.01+0.002
100kΩ		1Ω	0.01+0.005
1MΩ	10μA	10Ω	0.02+0.005
10MΩ	1μA	100Ω	0.1+0.010
100MΩ	100nA	1kΩ	1+0.1
Resistance Measurement Time	FAST: 7ms; MED: 22ms; SLOW1: 102ms; SLOW2: 402ms (DISPLAY OFF), add 20ms when DISPLAY ON.		
Temperature Measurement Time	100 ± 10ms		
Test Terminals Configuration	Four terminals		
Measurement Average Settings	1-255		
Clear "0"	√		
Range Switching	Automatic, Manual		
Trigger Mode	Internal, Manual, External, Bus		
Power Frequency Selection	√ (To avoid power noise interference)		
Measurement Settings Storage	30 sets		
Low Voltage Measurement	Open-circuit voltage: ≤ 60mV, effective range: 2Ω, 20Ω, 200Ω, 2kΩ		
Thermoelectric Potential Elimination	√		

Statistical Functions		Average value, maximum value, minimum value, total standard deviation, sample standard deviation, engineering capability index (dispersion Cp, bias CpK)
Test Line Contact Check		√ Detects whether the measurement line is connected properly
Multipolar Connector		√ (Optional high resistance test noise suppression function)
Beep Working Status		Comparator, range comparison, button press
Button Lock		√
Temperature Measurement 1		10.0℃--99.9℃, Sensor: PT500
Temperature Measurement 2		Analog input: 0V--2V, Display: -99.9℃ - 250℃
Temperature Compensation Function		(Resistance measurement value converted to the resistance value at the set temperature)
Temperature Conversion Function		Resistance values before and after heating are used to obtain the temperature rise
Comparator Signal Output	Signal Output	HI/IN/LO
	Alert	Beep modes: OFF, IN, HI/LO
	Limit Setting Mode	Absolute value upper/lower limit, percentage upper/lower limit + nominal value
Sorting		10 stages, absolute value/percentage
External Trigger Delay Time		Automatic: Determined by range, low voltage mode ON/OFF, OVC (offset voltage compensation) ON/OFF; Manual: 0.000--9.999s
External Input Trigger		Rising edge/falling edge selectable
Interface Configuration		USB DEVICE, USB HOST, RS232, LAN, HANDLER, GPIB (OPTIONAL)
Temperature, Humidity		0℃ -- 40℃, ≤ 90%RH
Guaranteed Accuracy Temperature and Humidity		23±5℃ ≤80%RH
Power Supply	Voltage	110V~220V
	Frequency	50Hz/60Hz
Power Consumption		30 VA

5. Operation Procedure

1. Place the core on the holder's base plate, loosen the locking handle, and rotate the handwheel until a certain pressure value is reached, clamping the core.
2. Connect the resistance meter leads to the terminals at both ends of the core.
3. Turn on the resistance meter and measure the core resistance.
4. For detailed operation of the resistance meter system, refer to the main system manual.

6. Warranty and Returns

6.1 Warranty

Rigchina Group Company warrants its products to be free from defects in material and workmanship for a period of 12 months from the time of shipment. If repair or adjustment is necessary, and has not been the result of abuse or misuse within the twelve-month period, please return, freight prepaid, and correction of the defect will be made without charge.

Out of warranty products will be repaired for a nominal charge.

Please refer to the accompanying warranty statement enclosed with the product.

6.2 Returns

For your protection, items being returned must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Rigchina will not be responsible for damage resulting from careless or insufficient packing.

Before returning items for any reason, authorization must be obtained from Rigchina Instrument Company. When applying for authorization, please include information regarding the reason the items are to be returned.

Our shipping address is:



RIGCHINA GROUP COMPANY

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