



青岛创梦仪器有限公司

Qingdao Chuangmeng Instrument Co., Ltd.

电阻率测定仪

Resistivity Meter



使用手册

Instruction Manual

版本.1.0

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请你仔细阅读《使用手册》，正确掌握本产品的安装和使用方法。阅读后请将本《使用手册》妥善保管，以备今后进行检修和维护时使用。

Please read the *Instruction Manual* carefully, for correctly grasping the installation and using method of this product. Please keep properly this *Instruction Manual* after reading, for the usage during troubleshooting and maintenance in the future.

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## 一、概述 Summary

钻井液电阻率测定仪是我公司最新研制生产的钻井液电阻率测量仪。主要用于测试各种液体的电阻率或导电性能，适应于油田钻井液电阻率和其他工业上的各种液体电阻率的测量，也可为液体矿化度分析，对水的纯度进行鉴别提供参考。是室内或野外理想的液体电阻率测量仪。因此，可广泛的应用于石油、地矿、钻井队及实验室等部门。

Drilling fluid Resistivity Meter is a newly product developed by our company. It is mainly used to test the resistivity and electrical conductivity of various liquids. It is adapted to the resistivity of oil field drilling fluid and the measurement of various kinds of liquid resistivity in other industries. It can also be used for the analysis of liquid mineralization and provide reference for the identification of water purity. It is the ideal liquid resistivity measuring instrument for indoor or outdoor. Therefore, it can be widely used in petroleum, geology and mining, drilling crew, laboratory and other departments.

## 二、型号及规格 Model and specifications

型号 Model	名称 Name	特点 Features
1811	电阻率测定仪 Resistivity Meter	便携、操作简单 Portable, Easy to operate

## 三、仪器的主要技术参数 The main technical parameters of instruments

名称 Name	技术参数 Technical parameter
工作电源 Power	AC110V/AC220 $\pm$ 10% , 50/60Hz, 9V $\times$ 4 6F22 锂电池 (Lithium battery)
工作环境温度 Working environment temperature	10 $\sim$ 50 $^{\circ}$ C
测量范围 measuring range	0.01 $\sim$ 10 $\Omega \cdot m$
测量精度 measurement accuracy	$< \pm 2\%$
测量温度范围 Measuring temperature range	0 $\sim$ 50 $^{\circ}$ C, 精度在 $\pm 1^{\circ}$ C以内 0 $\sim$ 50 $^{\circ}$ C, accuracy is within $\pm 1^{\circ}$ C
转换温度 Conversion temperature	0 $\sim$ 50 $^{\circ}$ C, 步进值为1 $^{\circ}$ C 0 $\sim$ 50 $^{\circ}$ C, step value is 1 $^{\circ}$ C

## 四、仪器的结构 The structure of the instrument

该仪器由测试仪器、电阻池、电源适配器、温度传感器等组成。

The instrument is composed of testing instrument, resistance pool, power adapter, temperature sensor and so on.

### A. 控制面板介绍 Introduction to the control panel:

(见图一) (see Figure 1)



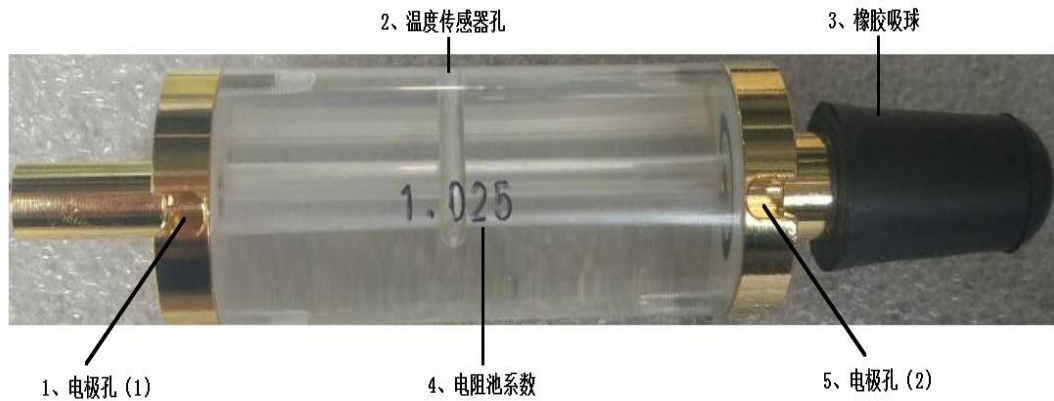
(图一) 控制面板图

(Figure 1) control panel diagram

- 1、开关机键 ON/OFF
- 2、功能：菜单键 Function: menu keys
- 3、上键 Up keys
- 4、下键 Down keys
- 5、确认键 Enter key
- 6、显示灯/确定：显示灯开/关控制 Display lamp / confirm: Display lamp ON/OFF control
- 7、液晶显示窗 Liquid crystal display window
- 8、电池低电量报警 Low battery alarm

### B. 电阻池 the resistance pool :

(见图二) (see Figure II)



- 1、电极孔 (1) Electrode hole (1)
- 2、温度传感器孔 Temperature sensor hole
- 3、橡胶吸球 Rubber suction ball
- 4、电阻池系数 Coefficient of resistance pool
- 5、电极孔 (2) Electrode hole (2)

## 五、仪器的操作 the operation of the instrument

1、检查温度传感器孔是否清洁。

2、接通电源，长按开关机按键，仪器开机。在使用设备内部电池供电时，如果欠压报警指示灯亮表明电池电量低请及时更换电池。开机当前显示界面是测量值跟转换值界面，如果测量值界面温度显示区域显示“----”表明温度传感器没有插入或传感器接触不良；如果测量值界面电阻率显示区域显示“----”表明电阻池没有连接或者电阻池内没有液体或者液体电阻率不再测量范围内。任何一个测量显示区域显示“----”，仪器都会在一分钟内自行断电。

3、将电阻池用待测液体冲洗几次，排空电阻池内气体，吸取待测液体，要求电阻池液体内无气泡，并擦拭电阻池表面和电极孔内的待测液体。

4、温度传感器探头应完全插入电阻池的测温孔内。将电阻池可靠得插在电极轴上，保持接触良好。

5、传感器与电阻池的接触时间应达到 3~5 分钟以后，读取并记录显示数值。

6、在开机界面下按动菜单按键显示实测温度及转换温度界面

上栏显示为：实测温度

下栏显示为：转换温度

通过上下按键可以设置转换温度设置范围是 1-50 度，设定之后按动确认按键返回到开机界面。

7、在开机界面下按动菜单按键两次显示“设置电阻池系数”界面。为了得到更精确的测量结果，通过设置电阻池系数来修正电阻池加工带来的测量偏差。（在用标准电阻校准仪器是否正常时，请将电阻池系数设为 1）。每个电阻池上都刻有电阻池系数，如更换电阻池时，将仪器上的“设置电阻池系数”设置为电阻池上刻的电阻池系数。

8、在开机界面下按动菜单按键三次显示“语言”界面通过上下键进行中英文切换。

**注：1、测量时，必须检查电阻池测量管内液体无气泡，电阻池应与测量电极充分接触，否**

则影响测量精度。

**2、电阻池吸入测试液体温度充分平衡后，再进行测试，保证数据准确。**

9、仪器校准：检测氯化钾溶液，检测值应为 18℃时为  $1.76 \pm 0.09$ ，若检测值不在范围内，可通过设置电阻池系数进行调整。

**注：检测时保证氯化钾溶液的温度与室温相等，检查氯化钾溶液是否过期。**

1, Check whether the temperature sensor hole is clean.

2, Turn on the power, press the button on and off, and turn on the instrument. When the battery is powered inside the device, if the undervoltage alarm indicator light indicates that the battery is low, replace the battery in time. The current display interface is the interface between the measured value and the conversion value. If the temperature display area of the measured value interface shows "-", the temperature sensor is not inserted or the sensor is in bad contact; if the measured interface resistivity display area shows "-" indicates that the resistance pool is not connected or there is no liquid or liquid in the resistance pool. The body resistivity is no longer in the range of measurement. Any measuring area shows "-", and the instrument will automatically turn off power within one minute.

3, The resistance pool is washed several times with the liquid to be measured, emptying the gas in the resistance pool, absorbing the liquid to be measured, requiring no bubbles in the liquid of the resistance pool, and wiping the surface of the resistance pool and the liquid in the electrode hole.

4, The probe of the temperature sensor should be inserted completely into the temperature hole of the resistance pool. The resistance cell is reliably inserted on the electrode shaft to maintain good contact.

5, The contact time between the sensor and the resistance pool should reach 3~5 minutes, then read and record the display value.

6, Press the menu button on the boot interface to display the measured temperature and conversion temperature interface.

The upper column is shown as the measured temperature

The next column is shown as: conversion temperature

The upper and lower buttons can set the conversion temperature range of 1-50 degrees. After setting, press the confirmation button to return to the boot interface.

7, Press the menu keys on the boot interface for two times to display the "setting resistance pool coefficient" interface. In order to get more accurate measurement results, the measurement deviation caused by resistance pool machining is corrected by setting resistance pool coefficient. (please set the resistance pool coefficient to 1 when calibrating the standard resistance instrument is normal. The resistance pool coefficient is engraved on each resistance pool, for example, when the resistance pool is replaced, the "setting resistance pool coefficient" on the instrument is set as the resistance pool coefficient on the resistance pool.

8, Press the menu button on the boot interface to display the "language" interface three times, and switch between Chinese and English through the up and down keys.

*Note: 1. When measuring, it is necessary to check the resistance pool. There is no bubble in the measuring tube. The resistance pool should be fully contacted with the measuring electrode, otherwise it will affect the measurement accuracy.*

*2. After testing the liquid temperature of the resistance pool, the test is carried out to ensure the accuracy of the data.*

9, Instrument calibration: test the potassium chloride solution, the detection value should be  $1.76 + 0.09$  at 18. If the detection value is not in the range, it can be adjusted by setting the coefficient of resistance pool.

*Note: the temperature of potassium chloride solution is equal to that of room temperature when testing. Check whether the potassium chloride solution is expired.*

## 六、仪器的维护与保养 Maintenance and maintenance of instrument

- 1、清洗各部件并干燥待用，仪器置于干燥环境中。
- 2、移动、维修或保养仪器时。要轻拿、轻放，以免造成部件变形影响精度和使用。
- 3、电阻率仪的电极轴、电阻池电极孔表面应保持清洁干燥，不得碰撞变形，表面不得腐蚀。
- 4、温度传感器探头表面应保持清洁，不得碰撞变形，探头不得接触腐蚀液体。
- 5、每次使用完毕后，清洁传感器插孔，电阻池用清水清洗干净，干燥存放。

1. Clean the components and dry them up. The instruments are placed in a dry environment.

2. When moving, repairing, or maintaining the instrument. It is necessary to take lightly and put it lightly so as not to cause deformation of parts and affect accuracy and use.

3. The surface of the electrode shaft and resistance cell electrode hole of the Resistivity Meter should be kept clean and dry.

4, the temperature sensor probe surface should be kept clean, not collision deformation, the probe must not contact the corrosive liquid.

5, after each use, clean the sensor socket, clean the resistance pool with clean water, dry and store.

## 七、故障的判定与排除 Fault determination and elimination

故障 Failure	原因 Reason	维修方法 Repair methods
测量时，数据不准 When measuring, data is not allowed	1) 电阻池吸入液体内有气泡 2) 电阻池橡胶吸球破损，电阻池内未吸满液体 3) 温度传感器插孔与电阻池的测试孔破损连通，进入气体 1) There are bubbles in the liquid in the resistance pool 2) The rubber ball of the resistance pool is damaged, and the resistance pool is not filled with liquid. 3) The temperature sensor socket is connected with the test hole of the resistance pool, and enters the gas.	1) 重新吸入测试液体 2) 更换橡胶吸球 3) 更换电阻池 1) Re inhalation of the test liquid 2) Replacement of rubber suction ball 3) Change the resistance pool
测量界面显示 “——” Measurement interface display “——”	1) 温度传感器未连接 2) 电阻池未连接 3) 电阻池内没有液体 4) 电阻池内液体电阻率不在测量范围内 1) Temperature sensor unconnected 2) Resistance pool unconnected 3) There is no liquid in the resistance pool 4) The resistivity of the resistance pool is not within the range of measurement	



# 青岛创梦仪器有限公司 装箱单

## Qingdao Chuangmeng Instrument Co., Ltd. Packing list

生产企业：青岛创梦仪器有限公司

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Production address: No. 3 Xinghai Road, Liuting Street, Chengyang District, Qingdao

主机型号：

Model of the main motor:

出厂编号：

Manufacturing No:

序号 No	编号	名称及规格 Name and specification	单位	数量 Quantity	备注 Remarks
1		主机 Main engine	台	1	
2		电阻池 Resistance pool	个	1	
3		温度传感器 Temperature sensor	个	1	
4		毛刷 Brush	把	1	
5		适配器 Adapter	套	1	
6		使用手册 Instruction Manual	份	1	
7		合格证 Certificate	份	1	