

便携式电导仪

说明书

MODEL EC 330



沪制02270148号



# EC330



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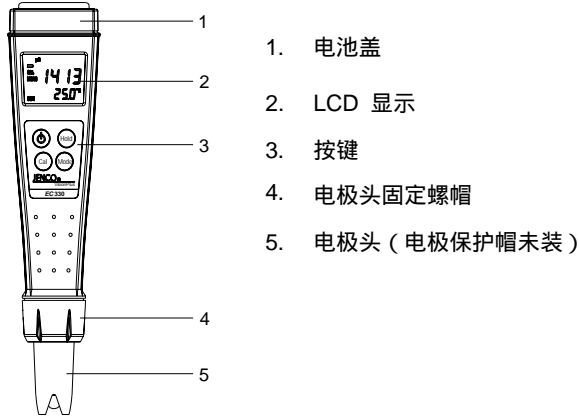
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## 产品检视

小心地打开包装，检视仪器及配件是否有因运输而损坏，如有发现，请立即通知 Jenco 的代理商。

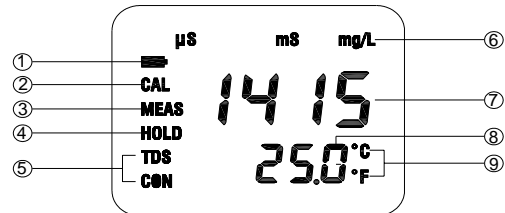
## EC 330 外观

### A. 机器外观说明



1. 电池盖
2. LCD 显示
3. 按键
4. 电极头固定螺帽
5. 电极头 (电极保护帽未装)

### B. 液晶显示说明



1. 低电显示
2. 校正模式显示
3. 测量模式显示
4. 锁定模式显示
5. 电导率/TDS模式显示
6. 电导率/TDS单位显示
7. 电导率/TDS读值
8. 温度读值
9. 温度单位显示

## 操作模式和按键操作

### A. 操作模式

EC 330 有三种模式：

1. 测量模式：用于测量电导率、TDS和温度值。
2. 校正模式：用于1或2点校正。
3. 锁定模式：用于锁定测量的数值。

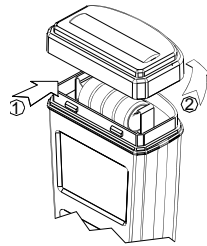
### B. 按键操作

按键	运作模式	持续时间	功能
Hold	测量模式	0 秒	锁定测量数值，再按一次返回测量模式。
	锁定模式	0 秒	回到测量模式。
	测量模式	5 秒	清除所有校正数据，回到出厂值。
Cal	测量模式	0 秒	进入校正模式。
On/Off	所有模式	0 秒	打开/关闭机器
Mode	测量模式	0 秒	选择显示模式:电导率( ), 电导率( ),TDS( )和 TDS( ).

## 使用前准备

### A. 安装电池

1. 请看右侧更换电池的分解图。
2. 先按“1”的箭头，用左手拇指压住电池盖，再用右手食指按“2”的箭头，掰起电池盖。
3. 装入四颗新电池，注意正负极不可装错，再将电池盖盖回，以确保正常的防水功能。



## **B. 电极的浸泡**

1. 取下EC 330的电极保护帽。
2. 在第一次使用之前，请把电极头浸泡在蒸馏水中10分钟后，再使用。

## **C. 配制标准溶液**

要配制合适的电导度标准溶液，请使用商业用或研究用等级的氯化钾（KCL）粉剂。

以下是两种标准溶液的配制方法，您可以用它们来校正 EC330。

1. 1413uS 标准溶液（25℃）：精确称量 0.746 克的分析用氯化钾(KCL)，溶解在 1000 毫升的蒸馏水中。
2. 12.90mS 标准溶液（25℃）：精确称量 7.4365 克的分析用氯化钾(KCL)，溶解在 1000 毫升的蒸馏水中。

[注意：剩余的标准溶液可以保存在塑料瓶中约一个星期。如果存放于 4℃ 温度下，可增加保存期限。若对保存溶液的精确度有怀疑时，最好重新配制。]

## **D. 设定和校正**

EC 330在第一次使用之前，必须设定和校正。

**详细步骤见P4页的“电导率校正”。**

# **EC 330 使用说明**

## **A. 开机/关机**

按“ On/Off ”键即可打开机器。如果机器是在开机状态，再按一次“ On/Off ”键，机器即可关闭。机器在不使用的时候，将在10分钟后自动关机。

## **B. 电导率校正**

使用者可选择1点或2点校正。

1. 取下机器的电极帽，将机器的电极头部分用蒸馏水洗净并擦干，放入1413uS标准溶液中，此时机器会显示此种标准溶液的温度。

- 按“Cal”键进入校正模式，主显示将显示“1415”，而“CAL”将显示在左侧。当“MEAS”显示出现时，单点校正完成，表示机器已可以测量了。

[注意：现在，机器可以精准的测量0~2000uS范围的电导率值。]

- 从1413uS标准溶液中取出机器，将机器的电极头部分用蒸馏水洗净并擦干，放入12.90mS标准溶液中，此时机器会显示此种标准溶液的温度。

- 按“Cal”键进入校正模式，主显示将显示“12.90”，而“CAL”将显示在左侧。当“MEAS”显示出现时，双点校正完成，表示机器已可以测量了。

[注意：现在，机器可以精准的测量0.0~20.00mS范围的电导率值。]

### **C. 电导率测量**

在“测量模式”，把机器放入被测溶液中，按“Mode”键，机器可显示：电导率( )，电导率( )，TDS( )和TDS( )。

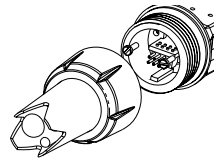
[注意：如果机器未显示“CAL”字样，表明机器未做任何校正，请重新校正后再使用。]

### **D. 锁定资料**


- 当电导率值稳定后，按一次“Hold”键就锁定读值了。
- 再按一次“Hold”键，机器将回到“测量模式”，显示另一个测量值。

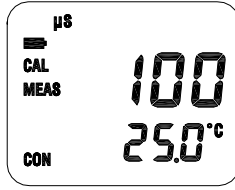
### **更换电极**

- 逆时针旋下电极头固定螺帽。
- 将电极头（损坏的）从电极插座上拔下。
- 插上新的电极头，并保证电极头与整机接触良好。
- 套上电极头固定螺帽并顺时针拧紧。
- 把电极头放入蒸馏水中浸泡10分钟后，重新校正后再使用。**详细步骤见P4页的“电导率校正”**



## 更换旧电池

当“”符号显示在LCD的左上角时，请更换电池。此符号显示后，整机大约还可以正常工作2~3个小时。



1. 取掉电池盖。（开电池盖的方式见P2“安装电池”）
2. 取出旧电池，装入新的电池。

[注意：更换电池后请重新校正机器后再使用。]

## 错误显示与排除方法

电导率显示	温度显示	显示模式	可能原因[排除方法]
"OVER"	"OVER"	测量模式	温度 >99.9°C 的测量范围。 [降低被测溶液的温度。] [检查或更换电极头。]
"OVER"	"udr"	测量模式	温度 <0.0°C 的测量范围。 [升高被测溶液的温度。] [检查或更换电极头。]
"OVER"	60.0 ~ 99.5°C	测量模式	温度 >60.0°C, 超出温度补偿范围。 [降低被测溶液的温度。]
"OVER"	0.0 ~ 60.0°C	测量模式	测量的电导率值超出20mS。 [检查或更换电极头。]
"ERR"	/	校正模式	a. 温度超出0 ~ 60.0°C 的温度补偿范围。 b. 修正值超出50%。 [降低被测溶液的温度。] [更换新配制的标准溶液。] [检查或更换电极头。]

## 规格

### 电导率

范围	分辨率	精确度
0 ~ 1990uS	5 uS	±1% FS
2.00 ~ 19.90mS	0.05mS	±1% FS

### TDS

范围	分辨率	精确度
0 ~ 1000mg/L	5 mg/L	±1% FS
1.00 ~ 10.00g/L	0.05g/L	±1% FS

### Temperature

范围	分辨率	精确度
0.0 ~ 99.5 °C	0.5 °C	±0.5 °C
32 ~ 212 °F	1 °F	±1 °F

### 电导率

温度补偿范围	自动0.0°C ~ 60.0 °C
温度系数	1.91%/°C
参考温度	25°C

### TDS

TDS 因数	0.50
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### 温度

温度传感器	热敏电阻, 10 k (25°C)
温度单位	°C 和 °F

### 其他

电源	LR44 x 4
环境温度	0.0 to 50.0 °C
机身	IP67 防水外壳
重量	105 克



## 质量保证

仪器保修一年（以购买日为准）。在保修期内如有质量问题，本公司将无偿代为修复；如有人为因素造成故障或损坏，本公司竭诚代为修复，但需酬收工本费（配件如电极头、标准液等消耗品不在保证范围内）。在将本机退回本公司时，请用包装材料妥为包好，以避免运输途中碰伤。无论何种情况，在退回本机前，请先与本公司联系，并得到本公司认可，方可退回本机。

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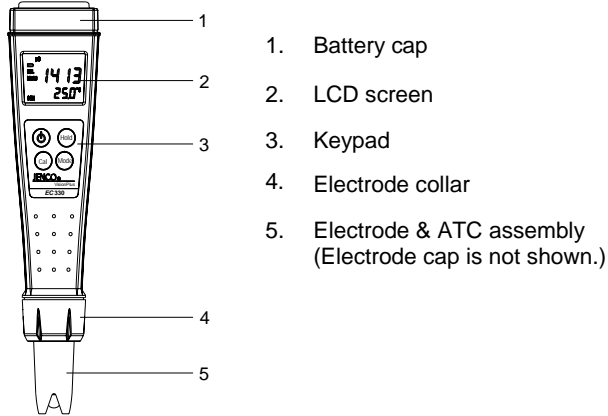
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## INITIAL INSPECTION AND ASSEMBLY

Carefully unpack the instrument and accessories. Inspect for damages made in shipment. If any damage is found, notify your **Jenco** representative immediately. All packing materials should be saved until satisfactory operation is confirmed.

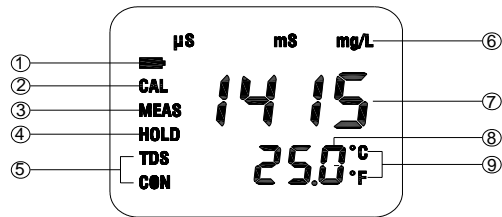
## VISIONPLUS EC 330 OVERVIEW

### A. Meter Description



1. Battery cap
2. LCD screen
3. Keypad
4. Electrode collar
5. Electrode & ATC assembly (Electrode cap is not shown.)

### B. LCD Display



1. LOW BATTERY indicator
2. CALIBRATION mode indicator
3. MEASURE mode indicator
4. HOLD mode indicator

5. CONDUCTIVITY/TDS mode indicator
6. CONDUCTIVITY/TDS unit indicator
7. CONDUCTIVITY/TDS reading
8. TEMPERATURE reading
9. TEMPERATURE unit indicator

## **OPERATION MODES AND KEYPAD OPERATIONS**

### **A. Operation Modes**

VisionPlus EC 330 meter has 3 operation modes:

1. Measure Mode. Measure Mode is used to make all conductivity or TDS and temperature measurements.
2. Calibration Mode. Calibration Mode is used to perform 1 or 2 point calibration.
3. Hold Mode. Hold Mode is used to display the locked reading for increased ease of use.

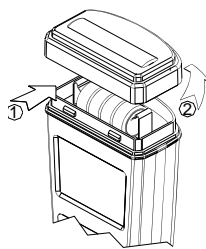
### **B. Keypad Operations**

Key	Operation Mode	Duration	Function
Hold	Measure	0 second	Holds current measurement reading. Press again to resume measuring.
	Hold	0 second	Returns to Measure Mode.
	Measure	5 second	Erases all stored data.
Cal	Measure	0 second	Enters Calibration Mode.
On/Off	All	0 second	Turns meter on/off.
Mode	Measure	0 second	Selects display mode: conductivity ( ), conductivity ( ), TDS( ) and TDS( ).

## **BEFORE YOUR FIRST USE**

### **A. Insert Batteries**

1. Remove the battery cover at the top of the unit.
2. Insert the set of batteries (included) ensuring correct polarities.
3. Securely replace battery cover.



### **B. Soak the Electrode**

1. Remove the electrode cap covering the VisionPlus EC 330 meter.
2. Soak the electrode in distilled water for 10 minutes before first use or after storage.

### **C. Preparing Standard Solutions**

Suitable conductivity standards are available commercially or the user can prepare them using research grade reagents.

Here are some standard solutions the user can prepare to calibrate the probe of the model EC330.

1. Standard solution of 1413uS at 25 : Accurately weight out 0.746 grams of research grade dried Potassium Chloride (KCL). Dissolve in 1000ml of distilled water.
2. Standard solution of 12.90mS at 25 : Accurately weight out 7.4365 grams of research grade dried Potassium Chloride (KCL). Dissolve in 1000ml of distilled water.

**[Note:** You can store the remaining solution in a plastic container for one week but the air space between the cap and the solution must be kept to an absolute minimum. Storing the excess solution below 4 can increase the storage life. If you have any doubt of the accuracy of the stored solution, a fresh batch should be prepared.]

## **D. Setup and Calibrate the Electrode and Meter**

VisionPlus EC 330 must be setup and calibrated before your first use. Please follow the instructions detailed in section **USING VISIONPLUS EC 330**.

### **USING VISIONPLUS EC 330**

#### **A. Power On/Off**

Press the "On/Off" key to turn the unit on. If the unit is running then you can press the "On/Off" key to turn the unit off. The unit will automatically turn off after 10 minutes of no key activity.

**[Note:** The unit will not automatically shut off if it is still immersed in solution even after 10 minute of no key activity.]

#### **B. Calibrate Conductivity**

The user can select one or two point conductivity calibration.

1. Rinse the electrode & ATC assembly in distilled water and immerse them in the standard solution of 1413uS. The temperature displayed is the solution temperature.
2. Press "Cal" key to initiate calibration. The "CAL" icon will appear when the main display shows "1415". **Single Point** calibration is now complete. The "MEAS" icon will appear. The unit is now ready to measure.

**[Note:** At this moment, the unit can measure 0~2000uS range of conductivity.]

3. Remove the electrode & ATC assembly from the standard solution of 1413uS. Rinse them in distilled water and immerse them in the standard solution of 12.90mS. The unit will display the temperature of the standard solution of 12.90mS.
4. Press "Cal" key to initiate calibration. The "CAL" icon will appear when the main display shows "12.90". **Dual Points** calibration is now complete. The "MEAS" icon will appear. The unit is now ready to measure.

**[Note:** At this moment, the unit can measure 0.0~20.00mS range of conductivity. ]

### **C. Measure**

In the "Measure Mode", dip the meter into the test solution. Measuring for Conductivity ( ) commences. Press "Mode" key to select: Conductivity( ), Conductivity( ), TDS( ) and TDS( ).

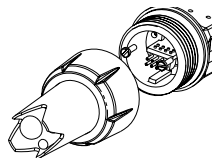
[**Note:** If the "CAL" icon does not appear, during measuring, it means the unit has not been calibrated. Repeat the calibration procedure.]

### **D. Hold Data**


1. When the conductivity reading is stable, press "Hold" key once to lock the reading.
2. Press "Hold" key again to unlock reading and the unit will return to "Measure Mode". The unit is now ready for another measurement.

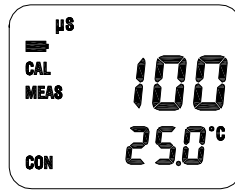
## **REPLACE ELECTRODE**

1. Unscrew the electrode collar to remove the electrode & ATC assembly as shown in the right figure.
2. Remove the old electrode from the electrode collar.
3. Insert a new electrode, make sure the electrode fit back into the meter correctly.
4. Screw back the electrode collar.
5. Soak the electrode in distilled water for 10 minutes and recalibrate the EC 330 following the instructions detailed in section **USING VISIONPLUS EC 330..**



## REPLACE THE OLD BATTERIES

Replace the battery when the blinking low battery indicator “” appears on the upper left corner of the LCD screen. The instrument can operate within specifications for approximately 2~3 hours after low battery indicator appears.



1. Take off the battery cover.
2. Remove all of the old batteries and insert a new set of batteries ensuring the polarities are correct.

**[Note:** Calibration of the unit is required after replacement of batteries.]



## ERROR DISPLAYS AND TROUBLESHOOTING

Conductivity LCD Display	ATC Display	DISPLAY Mode	Possible cause(s) [Action(s)]
"OVER"	"OVER"	Measure	Temperature >99.9°C range. [Bring solution to a lower temperature.] [Replace electrode & ATC assembly.]
"OVER"	"udr"	Measure	Temperature <0.0°C range. [Bring solution to a higher temperature.] [Replace electrode & ATC assembly.]
"OVER"	60.0 ~ 99.5°C	Measure	Temperature >60.0°C, over the temperature compensation range. [Bring solution to a lower temperature.]
"OVER"	0.0 ~ 60.0°C	Measure	[The conductivity value of the test solution is beyond 20mS.] [Replace electrode & ATC assembly.]
"ERR"	/	Calibration	a. Temperature exceed 0 ~ 60.0°C Temperature compensation b. Correction of slope beyond 50%. [Bring solution to a lower temperature.] [Use a new standard solution.] [Replace electrode & ATC assembly.]

# SPECIFICATIONS

## Conductivity

Range	Resolution	Accuracy
0 to 1990uS	5 uS	±1% FS
2.00 to 19.90mS	0.05mS	±1% FS

## TDS

Range	Resolution	Accuracy
0 to 1000mg/L	5 mg/L	±1% FS
1.00 to 10.00g/L	0.05g/L	±1% FS

## Temperature

Range	Resolution	Accuracy
0.0 to 99.5 °C	0.5 °C	±0.5 °C
32 to 212 °F	1 °F	±1 °F

## Conductivity

**Temperature compensation**      AUTO 0.0°C to 60.0 °C  
**Temperature Coefficient**      1.91%/°C  
**Reference temperature**      25°C

## TDS

**TDS Constant**      0.50

## Temperature

**Temperature sensor**      Thermistor, 10 k    at 25°C  
**Temperature unit**      °C and °F

## General

**Power:**      LR44 x 4  
**Battery life:**      >100 Hours  
**Ambient temperature range**      0.0 to 50.0 °C  
**Case**      IP67 water-tight case  
**Weight**      105 g

## WARRANTY

**Jenco** warrants this product to be free from significant deviations in material and workmanship for a period of 1 year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse, within the year period, please return-freight-prepaid and the correction of the defect will be made free of charge. If you purchased the item from our **Jenco** distributors and it is under warranty, please contact them to notify us of the situation. **Jenco** Service Department alone will determine if the product problem is due to deviations or customer misuse.

Out-of-warranty products will be repaired on a charge basis.

### RETURN OF ITEMS

Authorization must be obtained from one of our representatives before returning items for any reason. When applying for authorization, have the model and serial number handy, including data regarding the reason for return. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. **Jenco** will not be responsible for damage resulting from careless or insufficient packing. A fee will be charged on all authorized returns.

**NOTE:** **Jenco** reserves the right to make improvements in design, construction and appearance of our products without notice.

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