

# JENCO®

## VisionPlus

### Operation Manual

### MODEL EC331

Microcomputer Based  
Conductivity /Resistivity  
& Temperature Pocket  
Meter



# EC331

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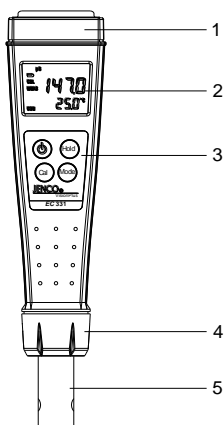
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# INITIAL INSPECTION AND ASSEMBLY

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.

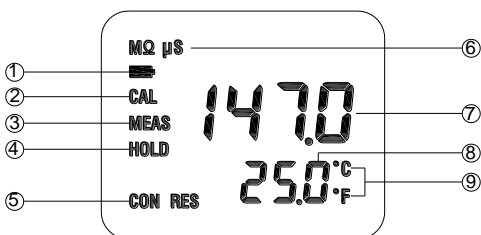
## VISIONPLUS EC 331 OVERVIEW

### A. Meter Description



1. Battery cover
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/RESISTIVITY mode indicator
6. CONDUCTIVITY/RESISTIVITY unit indicator
7. CONDUCTIVITY/ RESISTIVITY reading
8. TEMPERATURE reading
9. TEMPERATURE unit indicator

## OPERATION MODES AND KEYPAD OPERATIONS

### A. Operation Modes

VisionPlus EC331 meter has 3 operation modes:

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

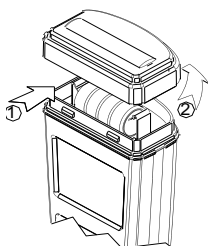
### B. Keypad Operations

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 (°C), Conductivity (°F), Resistivity(°C) and Resistivity(°F).

## **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 EC331 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 is the 147.0uS standard solution the user can prepare to calibrate the probe of the model EC331.

Standard solution of 147.0uS at 25°C: Accurately measure 100mL of the 1413uS conductivity standard solution. Dilute with 900ml of distilled water.

(Standard solution of 1413uS at 25°C: Accurately weight out 0.746 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°C 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 EC331 must be setup and calibrated before your first use. Please follow the instructions detailed in section **USING VISIONPLUS EC331**.

### **USING VISIONPLUS EC331**

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

Press “On/Off ” key to turn the unit on. If the unit is running then you can press ”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**

1. Rinse the electrode & ATC assembly in distilled water and immerse them in the standard solution of 147uS. The temperature displayed is the solution temperature.
2. Press “Cal” key to initiate calibration. The “CAL” icon will appear when the main display shows “147.0”. Calibration is now complete. The “MEAS” icon will appear. The unit is now ready to measure.

#### **C. Measure**

In the “Measure Mode”, dip the meter into the test solution. Measuring for Conductivity (°C) commences. Press “Mode” key to select: Conductivity(°C), Conductivity(°F), Resistivity (°C) and Resistivity (°F).

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

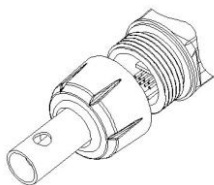
#### **D. Hold Data**

1. When the Conductivity or Resistivity 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.

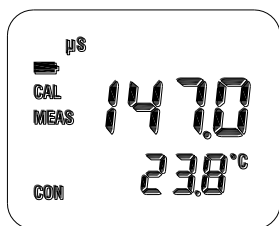
## REPLACE ELECTRODE

1. Unscrew the electrode collar to remove the electrode & ATC assembly as shown in the right figure.
2. Remove the old electrode from the meter.
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 EC331 following the instructions detailed in section **USING VISIONPLUS EC331**.



## 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 Display	ATC Display	DISPLAY Mode	Possible cause(s) [Action(s)]
"OVER"	"OVER"	Measure	Temperature >99.5°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 200uS. [Sample cannot be tested or 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
0.1 to 199.9uS	0.1uS (0.0~ 50.0uS), 0.5uS (50.0~ 100.0uS) and 1.0uS typical (100.0~199.0uS)	±1% FS

## Resistivity

Range	Resolution	Accuracy
1.0~20.0MΩ	0.1MΩ	±1% FS

## Temperature

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

## Conductivity

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

## Temperature

Temperature sensor	Thermistor, 10 k Ω 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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