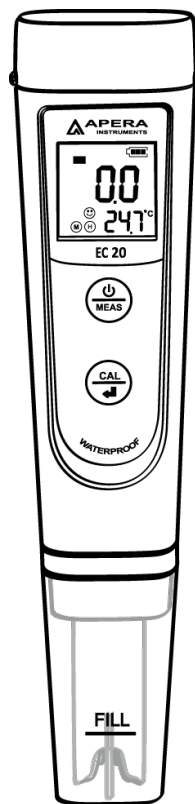# EC20 Pocket Conductivity Tester

Instruction Manual

## APERA INSTRUMENTS, LLC
www.aperainst.com

EC20 Pocket Conductivity Tester Instruction Manual

1. Battery Installation

Please install batteries according to the following steps. ***Please note the correct direction of battery installation:**

The Positive Side ("+") OF EVERY SINGLE Battery MUST FACE UP.

(WRONG INSTALLATION OF BATTERIES WILL CAUSE DAMAGE TO THE

TESTER AND POTENTIAL HAZARDS!)
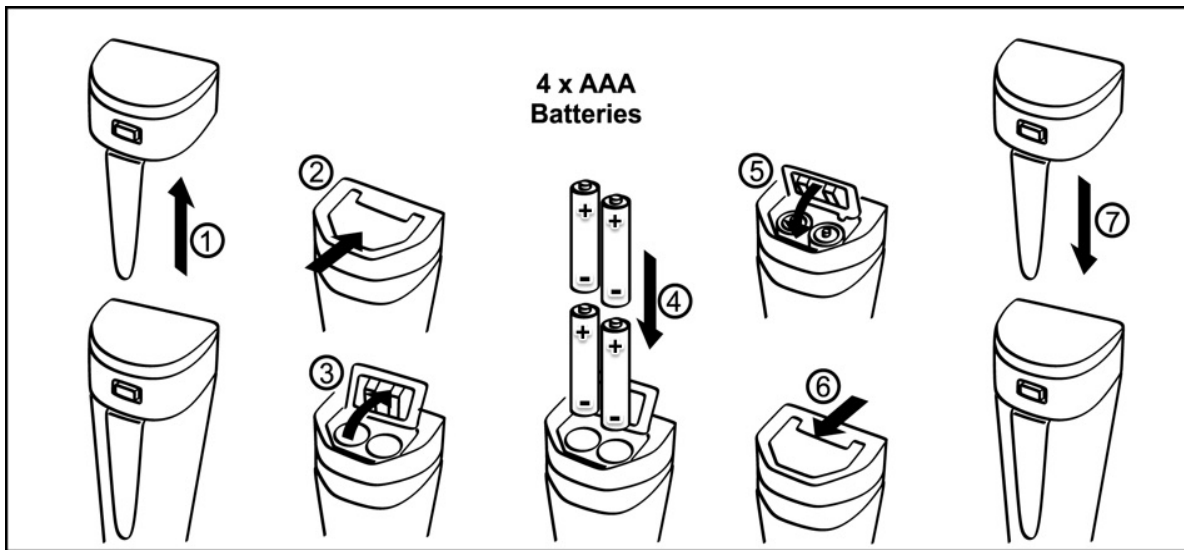
2. Keypad Functions

■**Short press-------** < 2 seconds

■**Long press--------** > 2 seconds

|	
⏻ MEAS	1. Short press to turn on, long press to turn off; 2. When turned off, long press to enter setup; 3. In mode setting, short press to change parameter;
CAL ↵	1. When turned on, long press to enter calibration mode. 2. In calibration mode, short press to confirm calibration; 3. In mode setting, short press to confirm parameter selection.

Diagram - 1

3. Complete Kit

(batteries are pre-installed)
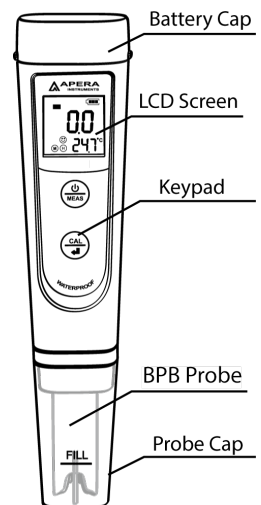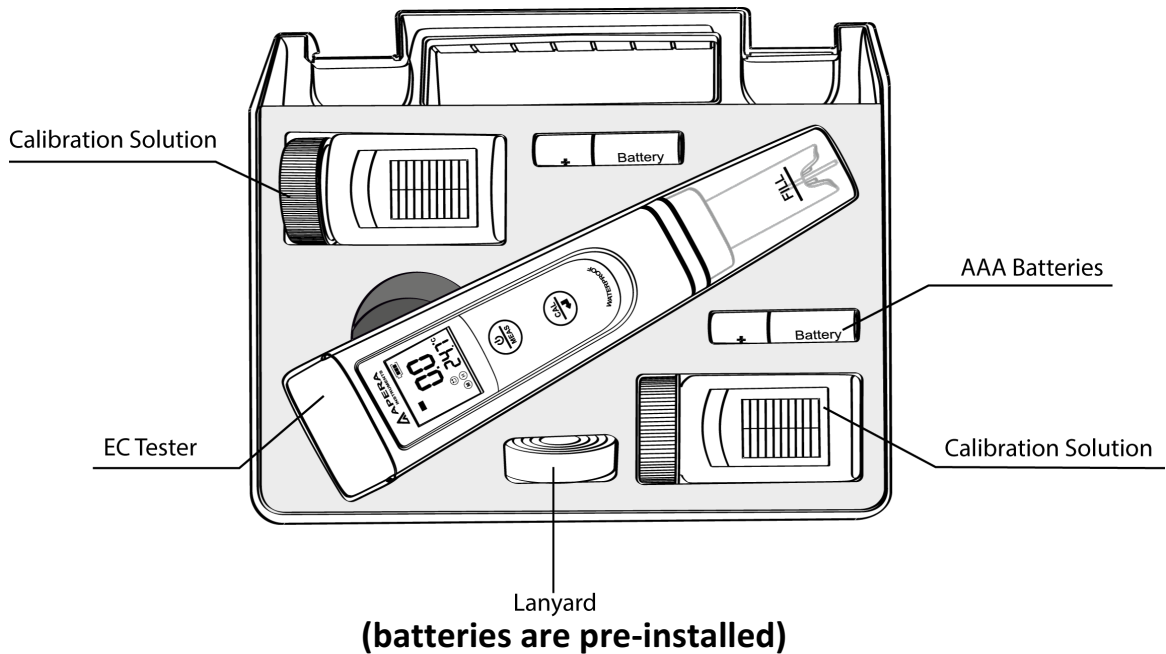
Diagram - 2

4. Calibration

4.1 Rinse the probe in distilled water and dry it with a clean tissue. Short press (⏻/MEAS) to turn on the tester.
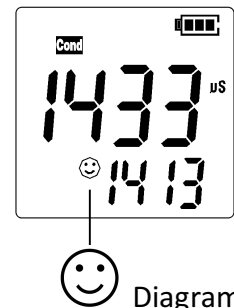
4.2 Long press (CAL/↵) to enter calibration mode; Short press (⏻/MEAS) to exit.

Diagram - 3

4.3 Dip the probe into 1413 μS/cm calibration solution. Stir gently, leave it to stand, LCD displays ☺ (Diagram 3), short press (CAL/↵) to complete 1-point calibration. The tester returns to measuring mode, and calibration icon (M) appears at the bottom left of LCD.

4.4 Rinse probe in distilled water and dry it. Follow the steps in 4.2-4.3 to complete 2nd point calibration in 12.88 mS/cm calibration solution, tester returns to measurement mode, calibration icons (M) (H) display on bottom left of LCD.

5. Conductivity Measurement

5.1 Short press (⏻ MEAS) to turn on tester. Rinse probe in distilled water and dry it with a clean tissue to remove excess water.

5.2 Stir the probe in the sample solution gently, leave it to stand. Get readings after the smile icon comes up and stays.

5.3 Rinse off the tester thoroughly in distilled water after each test.

6. Notes

6.1 If it's first time use or the tester hasn't been used for a long time, we recommend soaking the probe in 12.88 mS/cm solution for 15-30 minutes to restore its sensitivity and speed up the response time.

6.2 The tester adopts 1413 µS and 12.88 mS standard calibration solutions. Users can use 1-2 point calibrations as needed. For most circumstances, calibrating in 1413 µS to complete 1st point calibration will meet testing requirements.

6.3 Unit Information: 1 mS/cm = 1000 µS/cm

Once the readings are greater than 2000µS/cm, the unit will automatically become mS/cm.

6.3 The tester has self-diagnosis functions:

Symbol	Self-Diagnosis information	How to fix
Er 1	Wrong calibration solution, which exceeds the recognizable range of the meter.	1. Check if calibration solution is correct 2. Check if probe is damaged.
Er 2	(CAL) is pushed before measurement is stable (☺ comes up and stays)	Wait for the smile icon to stay, and then short press (CAL)

6.4 The tester has already been calibrated after manufacture. Usually users can use the tester right away, or test it in the calibration solutions to test its accuracy. When error is large, calibrate it before using.

7. Parameter Setting

7.1 Parameter setting reference chart:

Symbol	Parameter Setting content	Code	Factory Default
P1	Select conductivity ranges	Aut-μS-mS	Aut
P2	Restore to factory default	No – Yes	No

7.2 How to setup parameters:

When turned off, long press (⏻ MEAS) to enter setup → short press (⏻ MEAS) to switch P1-P2→ Short press (CAL ↵), parameter flickering→short press (⏻ MEAS) to choose, short press (CAL ↵) to confirm parameter selection→Long press (⏻ MEAS) to switch off.

7.3 Parameter setting notes

a) Select conductivity ranges (P1):

Aut-- All ranges: 0 – 199.9 μS/cm, 20 – 1999 μS/cm, 2.0 – 20.0 mS/cm;
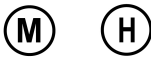
　　　Factory default is Aut.

b) Restore to factory default:

Select Yes to restore the calibration to the theoretical values and parameter setting to original values. When meter's calibration or measurement performs abnormally, this function can be adopted so the meter goes back to factory default setting and then users can conduct calibration or take measurements again.

8. Technical Specifications

Conductivity	Range	0 − 200.0 μS/cm, 0 − 2000 μS/cm, 0 − 20.00 mS/cm
	Resolution	0.1/1 μS/cm, 0.01 mS/cm
	Accuracy	±1% F.S±1 digit
	Calibration points	1-2 points auto calibration
	Automatic Temp. Compensation	0-50°C
Temp.	Range	0-50°C
	Resolution	0.1°C
	Accuracy	±0.5°C

9. Other Functions & Parameters

Indication of calibration points	(M) (H)	Auto Power-off	Power-off in 8 minutes if no operation
Indication of stable measurements	☺	Waterproof level	IP67, floats on water
Self-Diagnosis information	**Er1, Er2**	Power Supply	AAA batteries*4
Low battery reminder	▭ Flashes to remind to replace batteries	Battery Life	Up to 1000 hours of continuous operation
Dimensions/Weight	Instrument: 40*31*178mm/107g; Carrying case: 190*165*140mm/438g		

9. Warranty

    We warrant this instrument to be free from defects in material and workmanship and agrees to repair or replace free of charge, at option of APERA INSTRUMENTS, LLC, any malfunctioned or damaged product attributable to responsibility of APERA INSTRUMENTS, LLC for a period of **two years** from the delivery (a **six**-**month** limited warranty applies to electrodes). Warranty period is the time limit to provide free service for the products purchased by customers, not the service life of the tester or electrodes.

    This limited warranty does not cover any damages due to:

   i.   transportation;

  ii.   storage;

 iii.   improper use;

 iv.   failure to follow the product instructions or to perform any preventive maintenance;

  v.   modifications;

 vi.   combination or use with any products, materials, processes, systems or other matter not provided or authorized in writing by us;

 vii.   unauthorized repair;

viii.   normal wear and tear; or

 ix.   external causes such as accidents, abuse, or other actions or events beyond our reasonable control.

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