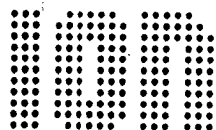


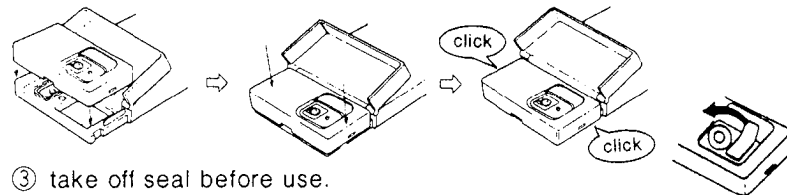
# HORIBA

## INSTRUCTION BOOKLET

### COMPACT ION METER

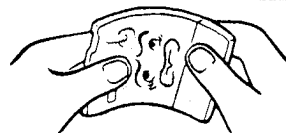


- ① Take out the new sensor from the silver colored pouch.
- ② Attach the new sensor to CARDY properly until it makes the clear click sound.



- ③ take off seal before use.

### 2 NOTES FOR PROLONGED USE OF THE CARDY



- Don't drop the CARDY or don't apply undue pressure



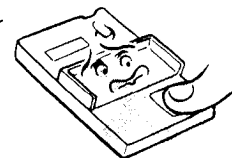
- Don't allow the CARDY to become wet



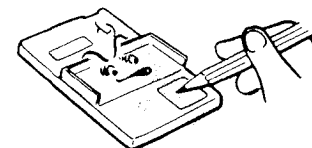
- Don't place the CARDY in direct sunlight, or in hot or humid places



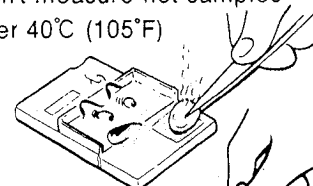
- Don't press the sensor pad with undue pressure



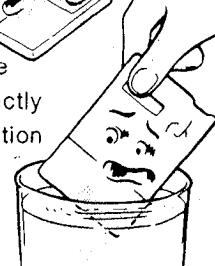
- Don't scratch the sensor pad



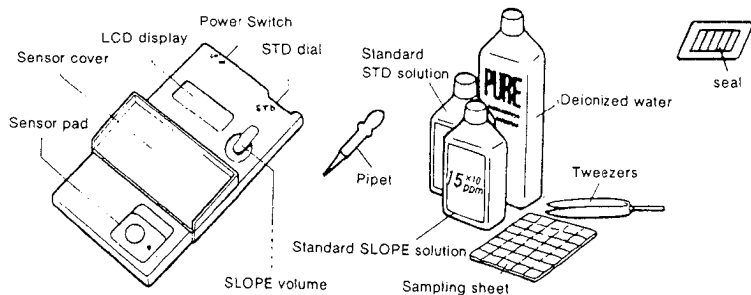
- Don't measure hot samples over 40°C (105°F)



- Don't put the CARDY directly into the solution in a beaker etc.



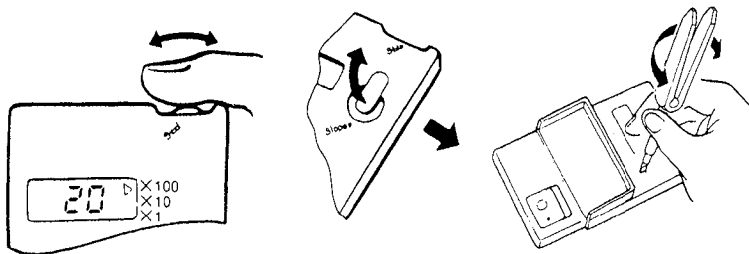
### 1 PARTS NAMES AND FIRST THINGS TO DO



### 3 HOW TO CALIBRATE THE CARDY

- 2-point calibration (for example once a month)
  - (1) Turn the power ON.
  - (2) Open the sensor cover, and wipe the sensor pad clean with a piece of sampling sheet or tissue, etc with deionized water, then wipe it dry with a piece of sampling sheet or tissue, etc. Repeat this several times.

- (3) Place a piece of sampling sheet onto the sensor pad, and drip 2 to 5 drops (approx. 0.15 ml) of the standard STD solution on it. (Or drip the solution directly onto the sensor pad.)
- (4) After the readout has stabilized, adjust the STD dial so that the display reads 20X100.



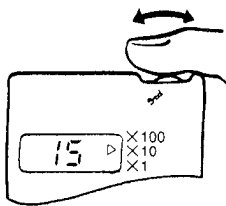
- (5) After cleaning the sensor according to steps (2), using the standard SLOPE solution and after the readout has stabilized, adjust SLOPE volume so that the display reads 15X10.
- (6) After cleaning several times with deionized water, measure the standard STD solution again. Recalibrate if the reading is not  $(20 \pm 2) \times 100$ .
- (7) Wipe the sensor pad with deionized water, then wipe it dry.

● 1-point calibration (recommend once a day, before use)

- (1) Turn the power ON.
- (2) Open the sensor cover, and wipe the sensor pad clean with deionized water, then wipe it dry. Repeat this procedure several times.
- (3) Place a piece of sampling sheet onto the sensor pad, and drip 2 to 5 drops of the standard STD solution on it. (or drip the solution directly onto the sensor pad.)

- (4) After the readout has stabilized, adjust the STD dial so that the display reads 20X100.

- (5) Wipe the sensor pad with deionized water, then wipe it



- (6) If the sample is below 500ppm, use the SLOPE solution and adjust the STD dial to read 15X10.

#### 4 HOW TO MEASURE

The CARDY allows you to measure the ion concentration of not only liquids but also solids. The measuring method varies depending on the state of the sample and environment.

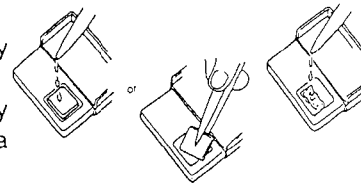
● Explanation of Displays

CARDY ION displays all segments of LCD within 1 seconds after the power switch has been turned ON. Displays other than the measurement values are listed in the table.

Display	Contents
— —	Readout is more than 10000ppm (1%)
E L	Ambient temperature is less than approx. 41°F (5°C)
E H	Ambient temperature is more than approx. 113°F (45°C)
B	Replace cells

● Liquids

- (1) Placing the sample directly onto the sensor pad  
Measurement can be aided by placing the sample onto a piece of sampling sheet.



- (2) Placing sampling sheet moistened with the sample on the sensor pad.  
This method is ideal for measuring small amounts of sample.

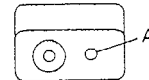
● Solids

The value displayed at the ion meter corresponds the concentration of the ion dissolved in the water. Accordingly, solids whose surface is dry cannot be measured directly. Also, when solid samples containing water are measured directly, the concentration of the ion content dissolved in the water of the sample is displayed, and so the content of the ion for the entire sample cannot be measured accurately.

In case of dry sample, measure its weight (ex. 10g) and add deionized water (ex. 100ml). Agitate thoroughly to extract ion from the sample. The condition of measure must be fixed.

#### 5 THINGS YOU SHOULD ALWAYS DO AFTER USE

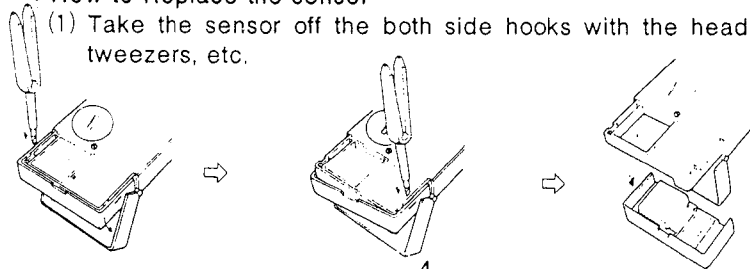
- ① Turn the power OFF.
- ② Clean the surface of the sensor pad with a sampling sheet with cleaning solution.
- ③ Wipe off the deionized water and store.
- ④ Attach the seal to the sensor spot of (A), if it might be stored for a long time.



#### 6 HOW TO REPLACE THE SENSOR AND BATTERY CELLS

● How to Replace the sensor

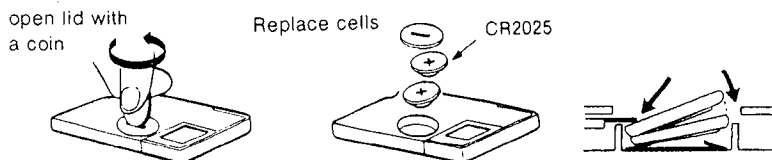
- (1) Take the sensor off the both side hooks with the head of the tweezers, etc.



(2) Attach the new sensor to CARDY properly until it makes the clear click sound. (see P.2)

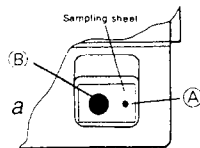
● How to Replace Battery Cells

Replace cells between metal fixture. Be sure the plus-side up.



**7 NOTES**

- ① When measuring, make sure that the sample is covering the two black round sensors in the sensor pad. The potential difference between these two sensors is used for measuring the ion concentration. The ion concentration cannot be measured if they are not covered by the sample. (A, B two sensors)
- ② The CARDY is not designed for the water-proof construction. Be careful for sample (solution) not to overflow the sensor pad.
- ③ Especially if any solution drips into the gap between CARDY case and sensor, it might cause unstable reading or trouble.
- ④ Use clean tweezers to handle the sampling sheet.
- ⑤ As the sensor pad is a thin, soft film, do not handle in such a way that will scratch or damage the sensor.
- ⑥ Do not use the CARDY for measurement of samples that are likely to damage the sensor pad such as organic solvents, surface activators, cement, alcohol, strong acid (pH 0 to 2), strong alkali (pH 12 to 14) etc.
- ⑦ In order to obtain measurement values of high repeatability, maintain identical conditions such as amount of deionized water, amount of sample, method of wiping the solution off.
- ⑧ Although there sometimes appears some liquid on a spot of (A), it's quite normal. Wipe it away with sampling sheet.
- ⑨ Please replace two cells at the same time.
- ⑩ Do not throw old cells into fire.
- ⑪ Do not leave old cells with children's reach. If a child swallowed a cell, ask a doctor immediately.
- ⑫ Any kind of wiping paper or tissue may be used. However, check if it causes ion interference or not.
- ⑬ If samples including a slight amount of oil are measured, and some oil remains on the sensor pad, detergent (diluted 700 times) may be used for cleaning the sensor. After cleaning with detergent, clean with cleaning solution (deionized water).



**8 SPECIFICATIONS**

Principle	Ion electrode method
Readout	LCD digital display
Guarantee range	10 <sup>-3</sup> to 10 <sup>-1</sup> mol/l (units can be used beyond 10 <sup>-3</sup> to 10 <sup>-1</sup> mol/l)
Repeatability	±20% of indication value
Ambient temperature	41 to 95°F (5 to 35°C)
Compensated sample temp.	at ambient temperature
Display range	0 to 99×100ppm
Resolution	1ppm (0 to 99ppm), 10ppm (10 to 99×10ppm), 100ppm (10 to 99×100ppm)
Power	CR2025(2) lithium cells, approx. 500 hrs. continuous operation
Weight, Dimentions	Approx. 0.09lb, 3.7×2.2×0.35 inch
Accessories	<ul style="list-style-type: none"> <li>• Standard STD, SLOPE solution, DI water</li> <li>• Sampling sheets</li> <li>• Tweezers</li> <li>• Pipet</li> <li>• seal</li> <li>• Instruction booklet</li> </ul>

Options :

Sensor (1)
Solution set ( STD (2), SLOPE (2), CLEANING (4) )
Sampling sheet (10)
Soft case

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS B COMPUTING DEVICE PURSUANT TO SUBPART J OF PART 15 OF FCC RULES.

The contents of this instruction are subject to change without prior notice for further improvement.

**CARDY Warranty**

This product has been brought to you having passed severe quality control and inspections. Should any trouble occur during the course of normal use, the CARDY shall be repaired or replaced free of charge in accordance with the stipulations laid down herein.

The term of this warranty shall be for three months from date of purchase. This warranty excludes batteries, sensor and accessories.

**HORIBA**

**WARNING**

- Wear protective goggles and rubber gloves when measuring dangerous materials (acids, etc).

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