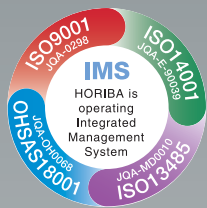


HORIBA

Scientific

*Ion measurement is changing ———
Ion specific meters offer shirt pocket convenience*



C-122 Na⁺ (Sodium) Ion Meter
C-131 K⁺ (Potassium) Ion Meter



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The Right Source For Your Test & Measurement Needs

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H O R I B A

Anatomy of a breakthrough

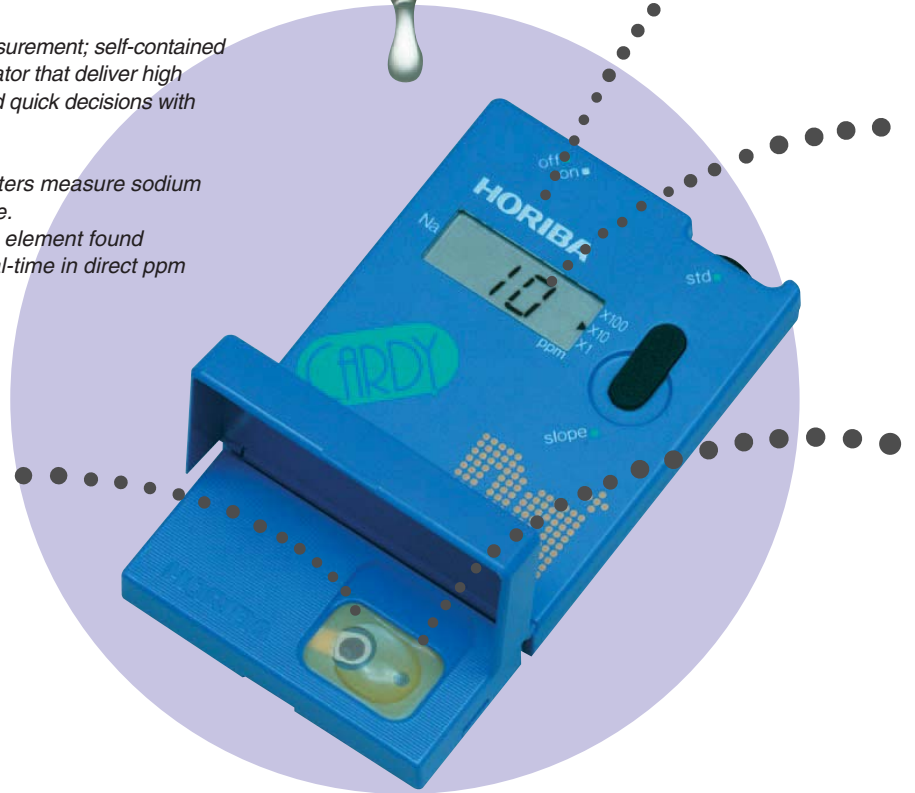
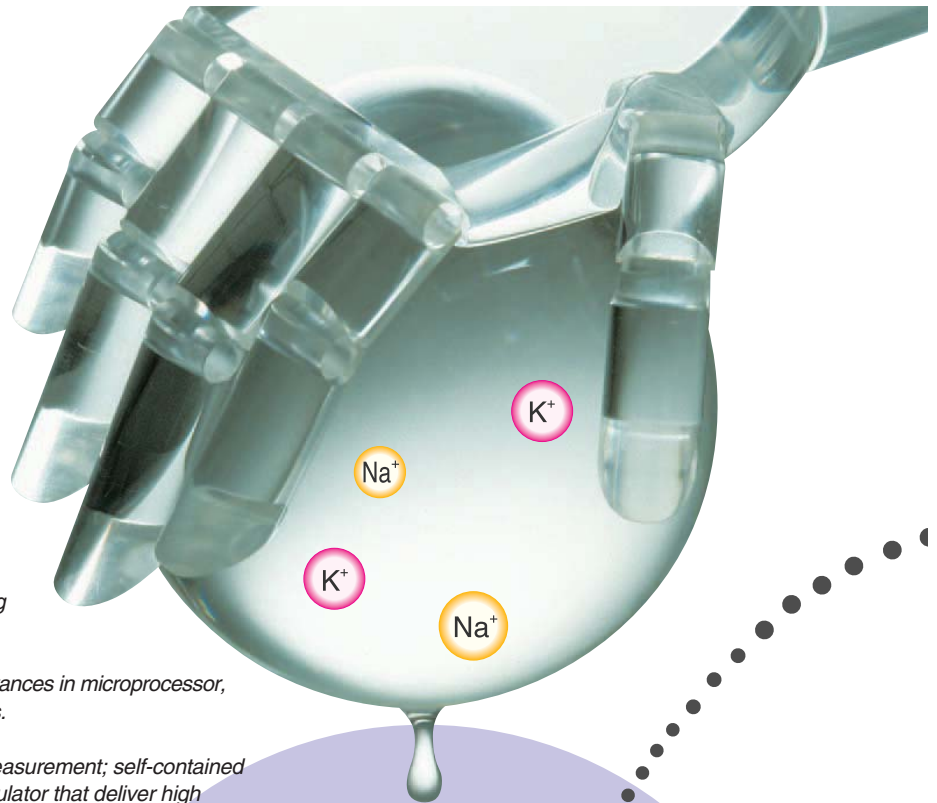
The Foundation : Over 35 years of careful, painstaking research, development and craftsmanship.

The Technologies : A careful integration of recent advances in microprocessor, miniature electronic and ion selective electrode designs.

The Result : A completely new concept in sample measurement; self-contained digital meters and the size of a shirt pocket sized calculator that deliver high quality answers, on the spot, for instant assessment and quick decisions with a minimum of effort.

These additions to the HORIBA line of shirtpocket meters measure sodium (Na^+), Potassium (K^+) with superb selectivity and ease.

They use the same flat surface design for the sensing element found in the Cardy pH and Salt meters. Results are read real-time in direct ppm concentration.



Revolutionary flat sensor adds convenience

The flat sensor built into Cardy's replaceable module makes the measurement in small samples and solids much more convenient. The recess acts as its own sample vessel, often eliminating beakers and bottles altogether. What's more, if replacement is ever needed, the sensor cartridge snaps in and out of the instrument at a touch.

flat sensor



Integrated design couples economy with quality

A whole Cardy system — meter, sensor and standards — costs much less than most ion-selective electrodes. The replacement sensors are many times less expensive. You even economize on samples and solutions since you need only a few drops to make the measurement. Cardy meters are high quality, low upkeep measuring instruments.

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C O M P A C T I O N M E T E R

Ultra-slim, ultra light shirtpocket portability enhances convenience

The size and weight of cassette tapes, Cardy meters slip neatly into your shirt pocket. They are the portable instruments for simple, quick measurements wherever and whenever needed.

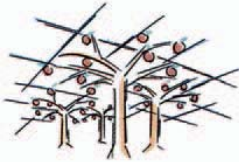
Automatic range switching affords broad measurement range

Two Cardy ion meters have a total display range of 0 - 99 x100 ppm in three automatically switched ranges: the x1 range, the x10 range (100 to 990 ppm) and x100 range (1,000 to 9,900 ppm). This gives the meters a broad display range and makes it easy to get precise results across measurement ranges of 23 - 2,300 ppm Na⁺, 39 - 3,900 ppm K⁺.

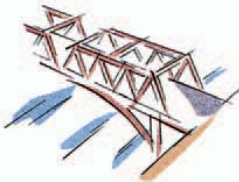
Newly developed ion selective electrodes improve durability

New high molecular weight polymers are longer lasting and more resistant to contamination, helping to provide trouble-free service at a cost savings.

Farm (K⁺) Analyzing crop nutrition



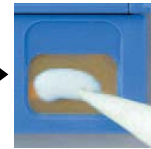
Bridge (Na⁺) Checking the surface of steel skeleton prior to painting



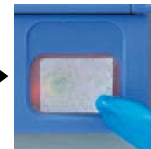
Research lab (Na⁺, K⁺) A wide range of uses



HOW TO USE THE CARDY



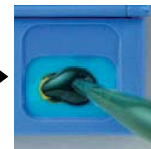
Milk
(direct method)
Drip the sample directly onto the sensor



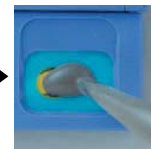
Saliva
(sampling sheet method)
Soak a sampling sheet in the sample and place on the sensor.



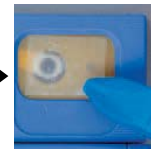
Fruit
(direct method)
Place sample directly on the sensor.



Plant tissue
(direct method)
Grind the plant tissue in a mortar and put it onto the sensor.



Soil
(extraction method)
Mix soil and extraction solution at the specified ratio and mix thoroughly. Put a few drops of this sample directly on the sensor.



Exposed metal surface
(sampling sheet method)
Wipe a measured surface area with a sampling sheet soaked in pure water and place this on the sensor.

Two types of compact ion meter



C-122 Na⁺ (Sodium) Ion Meter



C-131 K⁺ (Potassium) Ion Meter



Convenient soft case holds everything you need

A fully fitted soft case takes your CARDY meter and everything else you might need for measurement and calibration. With this tiny laboratory in hand, you and your CARDY can go all day, or all week, conveniently.

SPECIFICATIONS

	Na ⁺ (C-122)	K ⁺ (C-131)
Principle	Sodium ion electrode method	Potassium ion electrode method
Display	LCD, 2-digit	
Guarantee range	23-2300 ppm (10 ⁻³ -10 ⁻¹ mol/l)*	39-3900 ppm (10 ⁻³ -10 ⁻¹ mol/l)*
Display range	0-99×100 ppm	
Resolution	1 ppm for 0-99 ppm, 10 ppm for 10-99×10 ppm, 100 ppm for 10-99×100 ppm	
Calibration	2-point calibration by STD/SLOPE controls using standard calibration solutions, STD:2000 ppm, SLOPE:150 ppm	
Repeatability	±20 % of display value	
Sample temperature	5-35°C/41-95°F (temperature compensated at ambient temperature)	
Power	CR-2025 lithium cell (×2), approx. 500 hrs continuous operation	
Weight	Approx. 40 g, 1.4 oz	
Dimensions	95×55×9 mm, 3.7×2.2×0.35 in	
Standard accessories	Na ⁺ standard solution STD 2000 ppm, SLOPE 150 ppm	Na ⁺ standard solution STD 2000 ppm, SLOPE 150 ppm
	Deionized water (2 bottles)sampling sheet, tweezers, pipet, instruction booklet	

* Units can be used beyond 10⁻³ to 10⁻¹ mol/l.

CARDY Ion Meters' Electrode Selectivity Coefficients

	Na ⁺	K ⁺
Selectivity coefficient*	K ⁺ , Rb ⁺ =1×10 ⁻² Li ⁺ =1×10 ⁻³ NH ₄ ⁺ =6×10 ⁻³ Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , Mg ²⁺ Cs ⁺ =3×10 ⁻³ =1×10 ⁻⁴ pH range:pH 3-9 (at 10 ⁻³ mol/l) Na ⁺	Rb ⁺ =1×10 ⁻¹ Na ⁺ =3×10 ⁻⁴ NH ₄ ⁺ =7×10 ⁻³ Mg ²⁺ =1×10 ⁻⁵ Cs ⁺ =4×10 ⁻³ Ca ²⁺ =7×10 ⁻⁷ pH range:pH 2-9 (at 10 ⁻³ mol/l) K ⁺

* Selectivity coefficient is a concentration ratio of the interfering ion against the target ion, which affects the target ion measurement value. For example, selectivity coefficient of potassium ion against sodium ion is 10⁻², which means for the same concentration of potassium ion and sodium ion coexisting in a sample, the sodium measurement shows approximately 1% higher result.

CARDY Family



C-121 Salt Meter
Direct, accurate sodium ion measurement with no pH adjustment.



Compact pH meter
B-211/212/213
*B-213 (U.S.only)



Compact conductivity meter
B-173



Compact nitrate meter
B-341 For crops
B-341 For soil
B-341 For general use

Spare Parts

- Na⁺ standard solution set (Y024):
STD, 2000 ppm2 btls. SLOPE, 150 pp....2 btls.
Deionized water.....4 btls.
- K⁺ standard solution set (Y025):
STD, 2000 ppm2 btls. SLOPE, 150 pp....2 btls.
Deionized water.....4 btls.
- Sampling sheet (Y011A):10 booklet/set
- Soft case (Y091)
- Na⁺ flat sensor (0221)
- K⁺ flat sensor (0231)

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