

HORIBA

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



C-122 Na⁺ (Sodium) Ion Meter
C-131 K⁺ (Potassium) Ion Meter
C-141 NO₃⁻ (Nitrate) Ion Meter



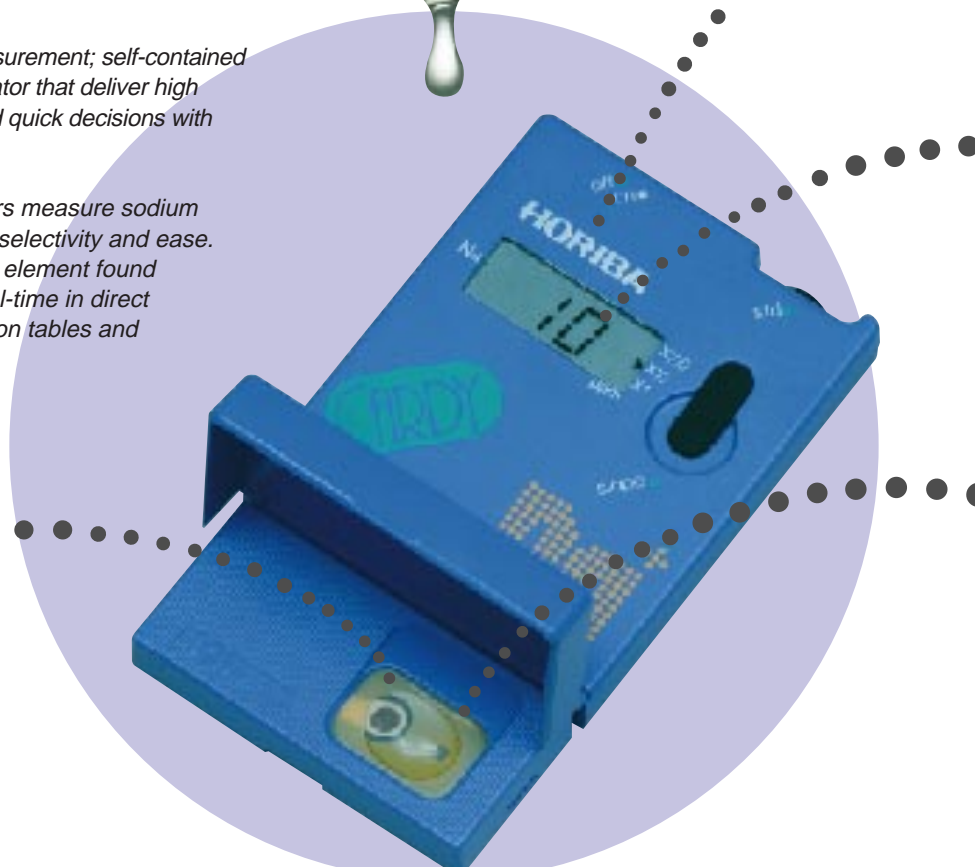
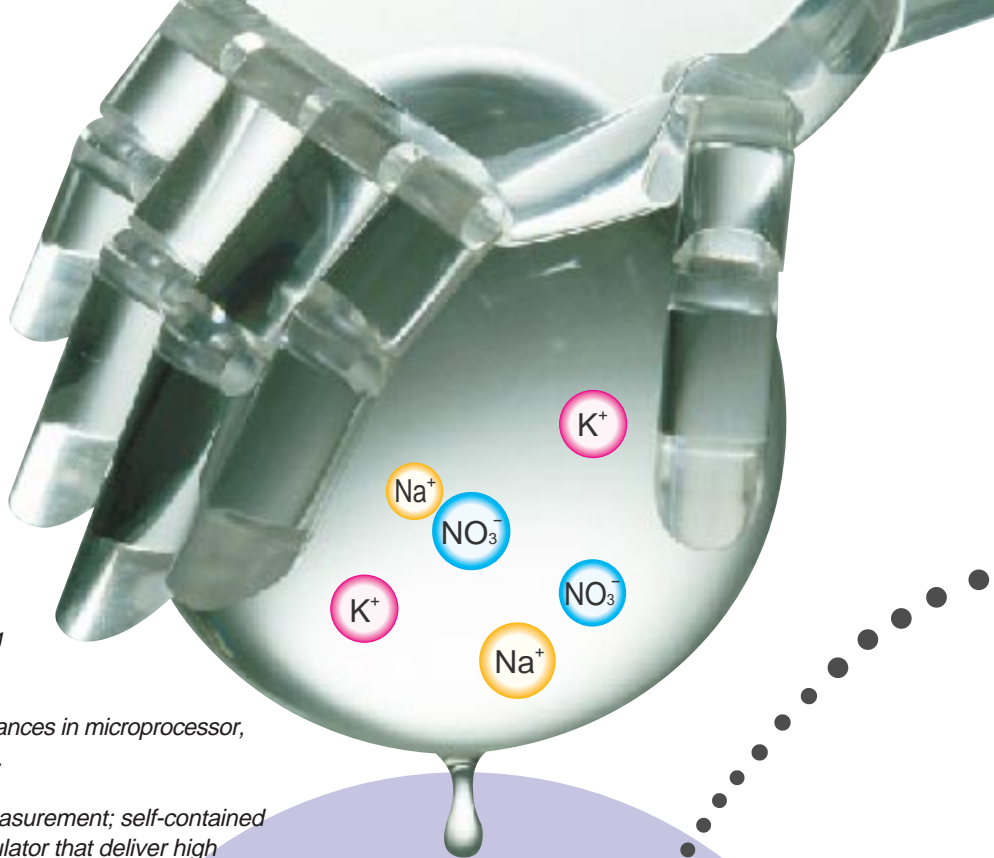
Anatomy of a breakthrough

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^+) and Nitrate (NO_3^-) 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 concentration terms, so you can forget fiddly conversion tables and calculations.



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.

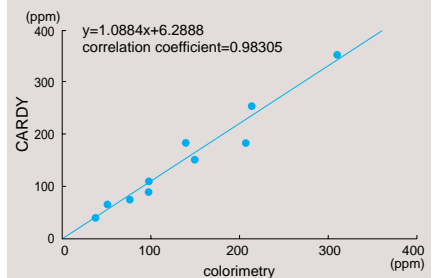
flat sensor



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.

NO_3^- measurement of soil-extraction liquid sample



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

All three 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⁺ and 62 - 6,200 ppm NO₃⁻.

Newly developed ion selective electrodes improve durability

New high molecular weight polymers are longer lasting and more resistant to contamination, giving you more trouble-free service and saving money on replacements.

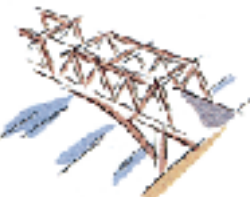
Farm (NO₃⁻, K⁺) Analyzing crop nutrition



Stock farm & golf course (NO₃⁻) Ensuring healthy growth of the grass



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



Research lab (Na⁺, K⁺, NO₃⁻) A wide range of uses



HOW TO USE THE CARDY



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



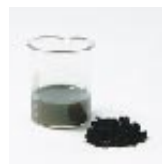
Saliva
(sampling sheet method)
Soak a sampling sheet in the sample and place on the sensor.



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 ration 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.

Three types of compact ion meter



C-122 Na⁺ (Sodium) Ion Meter

C-131 K⁺ (Potassium) Ion Meter

C-141 NO₃⁻ (Nitrate) 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.

(option)

SPECIFICATIONS

	Na ⁺ (C-122)	K ⁺ (C-131)	NO ₃ ⁻ (C-141)
Principle	Sodium ion electrode method	Potassium ion electrode method	Nitrate 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)*	62-6200 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	NO ₃ ⁻ 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 ⁺	NO ₃ ⁻
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)	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)	I ⁻ =7×10 ⁻¹⁰ Cl ⁻ =4×10 ⁻² Br ⁻ =9×10 ⁻¹ ClO ₄ ⁻ =3×10 ⁻³ NO ₂ ⁻ =7×10 ⁻¹ pH range:pH 3-8 (at 10 ⁻³ mol/l)

CARDY Family



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



Compact pH meter
B-211/212/213



Compact conductivity meter
B-173

Spare Parts

- Na⁺ standard solution set (Y024):
STD, 2000 ppm ...2 btl. SLOPE, 150 pp...2 btl.
Deionized water...4 btl.
- K⁺ standard solution set (Y025):
STD, 2000 ppm ...2 btl. SLOPE, 150 pp...2 btl.
Deionized water...4 btl.
- NO₃⁻ standard solution set (Y026):
STD, 2000 ppm ...2 btl. SLOPE, 150 pp...2 btl.
Deionized water...4 btl.
- Sampling sheet (Y011):10 booklet/set
- Soft case (Y091)
- Na⁺ flat sensor (0221)
- K⁺ flat sensor (0231)
- NO₃⁻ flat sensor (0241)



Please read the operation manual before using this product to assure safe and proper handling of the product.

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