

HORIBA

Explore the future

Ion measurement is changing —

Site-specific meters offer shirtpocket convenience



CARDY

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

noir

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^+) 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

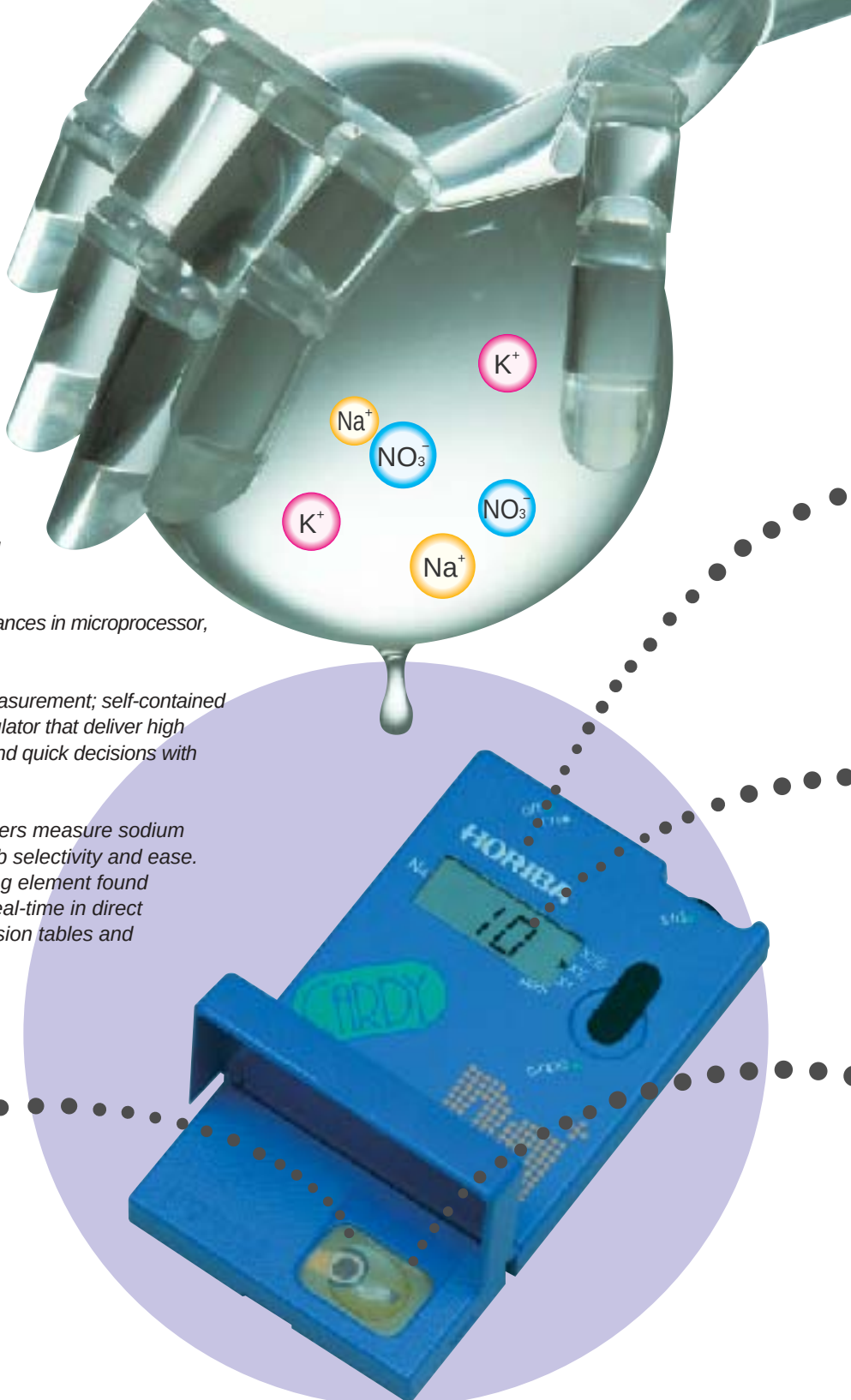
The flat sensor built into Cardy's replaceable module makes the measurement in small samples and solids much more convenient. The recess acts as its own sample vessel, often eliminating beakers and bottles altogether. What's more, if replacement is ever needed, the sensor cartridge snaps in and out of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

flat sensor

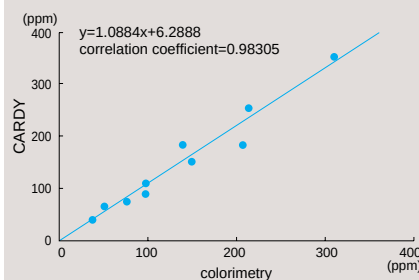


Integrated design couples economy with quality

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.

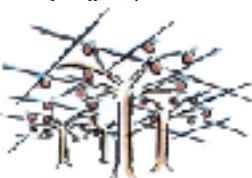
Automatic range switching affords broad measurement range

All three Cardy ion meters have a total display range of 0 - 99 × 100 ppm in three automatically switched ranges: the ×1 range, the ×10 range (100 to 990 ppm) and ×100 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.

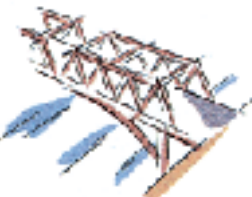
Farm (NO₃⁻, K⁺) Analyzing crop nutrition



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
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.

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.

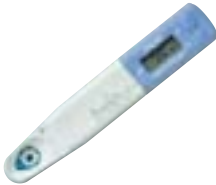
CARDY Ion Meters' Electrode Selectivity Coefficients

	Na ⁺	K ⁺	NO ₃ ⁻
Selectivity coefficient	K ⁺ , Rb ⁺ =1×10 ⁻² NH ₄ ⁺ =6×10 ⁻³ Cs ⁺ =3×10 ⁻³ Li ⁺ =1×10 ⁻³ Ca ²⁺ , Sr ²⁺ , Ba ²⁺ , Mg ²⁺ =1×10 ⁻⁴ pH range:pH 3-9 (at 10 ⁻³ mol/l)	Rb ⁺ =1×10 ⁻¹ NH ₄ ⁺ =7×10 ⁻³ Cs ⁺ =4×10 ⁻³ Na ⁺ =3×10 ⁻⁴ Mg ²⁺ =1×10 ⁻⁵ Ca ²⁺ =7×10 ⁻⁷ pH range:pH 2-9 (at 10 ⁻³ mol/l)	I ⁻ =7×10 ⁻¹⁰ Br ⁻ =9×10 ⁻¹ NO ₂ ⁻ =7×10 ⁻¹ Cl ⁻ =4×10 ⁻² ClO ₄ ⁻ =3×10 ⁻³ 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 btls. SLOPE, 150 pp…2 btls.
Deionized water…4 btls.
- K⁺ standard solution set (Y025):
STD, 2000 ppm …2 btls. SLOPE, 150 pp…2 btls.
Deionized water…4 btls.
- NO₃⁻ standard solution set (Y026):
STD, 2000 ppm …2 btls. SLOPE, 150 pp…2 btls.
Deionized water…4 btls.
- 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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HORIBA

<http://www.horiba.com> e-mail: info@horiba.co.jp

●HORIBA, Ltd. Head Office Miyano Higashi, Kisshoin Minami-ku, Kyoto, Japan Phone: 81 (75) 313-8123 Fax: 81 (75) 321-5725	Tokyo Sales Office 1-7-8 Higashi-Kanda Chiyoda-ku, Tokyo, Japan Phone: 81 (3) 3861-8231 Fax: 81 (3) 3861-8259	Beijing Representative Office Suite 1409, Tower B, COFCO Plaza, No. 8, Jianguomennei Avenue, Beijing, China, 100005 Phone: 86 10-6522-7573 Fax: 86 10-6522-7582	Shanghai Representative Office Unit F1 16F Jiushi Fuxing Mansion, No. 918, Huaihai Zhong Road, Shanghai, China, 200020 Phone: 86 21-6415-3689/90 Fax: 86 21-6415-9746	Taiwan Representative Office No.15 Alley6, Lane 485, Sec. 1, Kuang Fu Rd., Hsin-Chu, Taiwan, R.O.C. Phone: 886 (3) 5799143 Fax: 886 (3) 5799164	●HORIBA KOREA Ltd. 112-6 Sogong-Dong Choong-ku, Seoul, Korea Phone: 82 (2) 753-7911 Fax: 82 (2) 756-4972
●HORIBA INSTRUMENTS Pte. LTD. 10 Ubi Crescent #05-11/12, Ubi Techpark Singapore 408564 Phone: 65 6745-8300 Fax: 65 6745-8155	●HORIBA INSTRUMENTS INCORPORATED Irvine Facility 17671 Armstrong Avenue Irvine, CA 92614, U.S.A. Phone: 1 (949) 250-4811 Fax: 1 (949) 250-0924	Ann Arbor Facility 5900 Hines Drive Ann Arbor, MI 48108 U.S.A. Phone: 1 (734) 213-6555 Fax: 1 (734) 213-6525	●HORIBA / STEC INCORPORATED 1080 E. Duane, Suite. A Sunnyvale, CA 94086 U.S.A. Phone: 1 (408) 730-4772 Fax: 1 (408) 730-8975	●HORIBA GmbH Kaplanstrasse 5 A-3430 Tulln, Austria Phone: 43 (2272) 65225 Fax: 43 (2272) 65230	HORIBA CZECHIA Organizacni slozka Praha Petrohradská 13 CZ-101 00 Praha 10, Czech Republic Phone: 420 (2) 717-464-80 Fax: 420 (2) 717-470-64
●HORIBA INSTRUMENTS LIMITED Kyoto Close Summerhouse Road Moulton Park, Northampton NN3 6FL, U.K. Phone: 44 (1604) 542500 Fax: 44 (1604) 542699	●HORIBA EUROPE GmbH Head Office Hauptstrasse 108 D-65843 Sulzbach Germany Phone: 49 (6196) 6718-0 Fax: 49 (6196) 641198	Leichlingen Facility Julius-kronenberg Strasse D-42799 Leichlingen Germany Phone: 49 (2175) 8978-0 Fax: 49 (2175) 8978-50	HORIBA FRANCE Rue L. et A. Lumière Technoparc F-01630 St-Genis-Pouilly France Phone: 33 (4) 50-42-27-63 Fax: 33 (4) 50-42-07-74	HORIBA SWEDEN Hertig CarlsVag 55-57 S-15138 Södertälje Sweden Phone: 46 (8) 550-80701 Fax: 46 (8) 550-80567	HORIBA ITALY Europalace Corso Torino 43/45 10043 Orbassano,Torino,Italy Phone: 39 (011) 9040601 Fax: 39 (011) 9000448