

ICA-7000 Ion chromatograph

New model with a variety of functions to support smooth analysis



 All-in-one, compact design
Compatible with both suppressor and non-suppressor systems

DKK-TOA CORPORATION



All-in-one, compact design Same size-even in 2ch systems.

- The main unit houses and integrates all units, including the detector, pump, display, operating unit, and column temperature chamber.
- Installation space of the equipment has been reduced.

Excellent scalability due to the unitized instrument configuration

- Up to 3ch of ion chromatography equipment can be constructed with additional pumping units.
- Adoption of a new pump enables stable liquid feeding.
- Two suppressor removing liquid pumps can be stored.
- Horizontal storage of the column for improved maintenance. The new deaeration unit has a standard 2-stream specification.



Pump unit



Column portions can be withdrawn



Thermostatic bath

Device control and data-processing by USB

- Communication between the server and the data processor PC is performed via USB and can be controlled remotely by using a commercially available RS-232C/LAN transmitter adapter.
- All you need to do is install the dedicated software from PC.



Realize high-sensitivity analysis by responding to suppressor system.





Suppressor Pump Unit (for main body integration)



Responding to a wide range of analytical needs

It is possible to analyze sugar and other substances by combination with an electrochemical detector.



Electrochemical detector

Non-suppressor Anion/Cation analysis

Basic system

★ It is the simplest system of instrument configuration. Can be used for anion/cation analysis with non-suppressor



High-sensitivity analysis of anions at low cost

Chemical suppressor system

★ Chemical suppressor and pump unit can be incorporated into the basic system to analyze anions with high sensitivity.



Effective separation and analysis of organic acids Organic acid and weak acid analysis system

★ Ion-exclusion columns allow specific separation of organic acids.
By using the post-column method, a reactive solution (adjusted pH) is added to the flow path, which enables the determination with an electric conductivity detector.



Simultaneous analysis from sugar alcohols to monosaccharides and disaccharides Saccharides analysis system

★ Sugars can be measured by combining the basic system with an electrochemical detector.



*One pump unit, one deaeration unit, and one injection valve each are included. 04

Automated analysis of up to 100 samples — Multi-sample automatic analysis system (chemical suppressor)

★ Multiple negative/positive analyte assays can be performed by combining an autosampler ICA-700AS with a chemical suppressor system.





Example of measurement









Food ingredients





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Peripheral equipment

Sensitive analysis of anions

Chemical suppressor unit

Suppressor pump unit : 7591950U) (C

Chemical suppressors : 6813690K

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★ Realizes low-cost high-sensitivity analysis.

A combination of a suppressor pump unit for removing liquid delivery and a chemical suppressor enables highly sensitive anion analysis.

Chemical suppressors are for anion analysis that use a high exchange capacity cation exchange membrane (fiber-type).



Suppressor pump unit



The removal solution for the chemical suppressor can also be degassed inline. The fluctuation of the origin baseline for pumping the removal solution is suppressed to ensure more stable measurement.



When passing through a chemical suppressor, H^+ of cations (Na^+, etc.) and remover in the eluent/sample are exchanged.

HCL

During the analysis, the eluent and the removing solution (strong acid such as sulfuric acid) are fed and used.

In addition, the purpose anion (e.g. $\mbox{Cl}^-)$ becomes a strong acid (e.g. HCl) and is more sensitive.

Compatible with continuous measurement of multiple samples.-

Autosampler

ICA-700AS

Automatic measurement of 100 continuous samples

The vial rack is equipped with two 50 samples as standard. Samples can be prepared in a separate rack during the measurement. (One sample is used as a standard solution.)

Can be selected from two types of injection methods.

Sample injections can be selected from two types: loop mode or injection mode.

The injection volume can be set from 1 to $1000 \,\mu$ L in $1 \,\mu$ L steps.

(Loop mode: A fixed volume of loop volume is injected.) Injection mode: Injection volume is arbitrarily set.



Autosampler (Standard Type)

★ Enables control from PC softwares

★ Optional cooling unit available

For samples requiring cooling, such as the cyanogen measurement system is available.

★ One unit can simultaneously measure 2ch

2ch specification eliminates the standard for additional bulbs and syringes.

(Concerning simultaneous measurement, there are some conditions, so please contact us separately.)

- *1 Please specify ICA-7000 as the connected model when ordering. If the connection model is not specified, the connection cable is not included. The code for purchasing the connection cable separately is 134H021 and 118G9421.
- *2 Vial racks can be purchased additionally for sample preparation.
- *3 Use ultrapure water as cleaning water.
- *4 Cooler unit is sold separately. The code for purchasing separately is 133A047.



Autosampler with cooling function available (factory option)

Ion chromato	ography main unit ICA-700	0		
Display		Backlit monochrome graphics LCD		
Setting operation		Key operation or setting operation by PC dedicated software		
Material of wet part		Perfect nonmetal		
Power supply		AC100V 50/60Hz		
Power consumption		Max. 300VA		
Dimensions		Approx. 400 (W) × 550 (H) × 471 (D) mm		
Mass		1 channel : about 28kg 2 channel : about 31kg		
Constant temperature part	Temperature control method	Air circulation system		
	Temperature control range	Room temperature +10 to 60°C.		
	Temperature stability	±0.1℃		
	Temperature chamber internal dimensions	Approx. 365 (W) × 100 (H) × 113 (D) mm		
	Storable column	3 pieces of ϕ 4.6×250mm can be stored at the same time.		
	Liquid leak sensor	Built in		
	Others	Two electric conductivity cells, two injectors, two suppressors, and a reaction coil can be stored simultaneously.		
	Method	Manual sample-injector PEEK syringes with needles		
	Material of wet part	PEEK, ceramics		
Sample injection port	Pressure resistance	25MPa		
	Sample measurement system	Loop cut method		
	Built-in number	Maximum of 2 formulas		
Description	Method	In-line fluoropolymer gas transmission separation type		
Degassing part	Built-in number	2 flow paths (standard integration)		
	Model name	ICA-700P (dedicated pumping)		
	Liquid delivery system	Linear drive double plunger reciprocating system		
	Material of wet part	PEEK, sapphire, ruby, PTFE, PCTFE, PFA, ETFE, cullets		
Dump costion	Maximum delivery pressure	20MPa		
Pump section	Flow rate setting range	0.001 to 9.999mL (setting range in dedicated software: 0.01 to 9.99mL/min)		
	1 Head discharge rate	80µL		
	Gradient	Isocratic: 1 type, gradient: 2 types		
	Built-in number	Up to 3 units (standard built-in: 1 unit)		
Detection next	Method Electric conductivity circuit 2ch, analog input circuit 2ch			
Detection part	Built-in number	Electric conductivity circuit 2ch, analog input circuit 2ch Max. 3ch		
	OS	Windows11/10/8.1/7 32bit or 64bit		
	Communication mode	USB		
Data Processing		Power ON/OFF, one week timer start/stop		
Control software	Main Control/Monitor Contents	Flow rate, pressure, pressure limit, temperature (temperature chamber, cell),		
		conductivity detector sets, measurement signals, etc.		
	Data acquisition	Independent 3ch		
Recommended	PC for use with instrument co	ntrol/data analysis software (Note: In principle, PC is provided. (sold separately))*1*2		
	OS	Windows11/10/8.1/7 32bit or 64bit		
	Processor	Intel Core i3 or higher (i5 or higher recommended)		
Recommended PC	Memory	2GB or more RAM		
(sold separately)	Hard disk	HDD 16GB or more free space		
	USB	One or more free USB2.0 interface ports		
	Screen resolution	1366×768 pixels or more		
Conductivity cell				

Built-in models ICA-7000 main unit Measurement method Computational amplification method with 3-pole electrode Measurement range 0 to 500mS/m Response FAST (about 1.5s), MIDD (about 3s), and SLOW (about 5.5s) Cleaning the cell and Control temperature 30°C, 35°C, 40°C, 45°C, 50°C Output Analogs: 0 to 1V Ranges: ×100 500mS/m ×10 50.0mS/m ×1 5.00mS/m ×0.1 0.500mS/m Output polarity switching Exists Material of wet part PEEK, Titanium, PCTFE Cell pressure resistance 1MPa Dimensions Approx. 51 (W) \times 114 (H) \times 59 (D) mm (without protrusions) Mass About 0.5kg Degassing unit Built-in models ICA-7000 main unit Deaeration system In-line system, fluororesin gas transmission separation type DETBOLYME 2 flow paths (standard integration) Approx. 105 (W) \times 144 (H) \times 199 (D) mm (without protrusions) Dimensions Mass 2 flow path: approx. 1.8kg *1 Please contact our sales representative in advance if you prepare your own PC. NOTE) • Windows is a registered trademark of Microsoft Corporation in the U.S. *2 PC with Microsoft Office is standard. and other countries. • Intel Core is a registered trademark of Intel Corporation in the U.S.

Pump unit ICA-700P

ICA-7000 main unit
Linear drive double plunger reciprocating system
PEEK, sapphire, ruby, PTFE, PCTFE, PFA,ETFE, Calretz
20MPa
0.001 to 9.999mL (setting range of dedicated software: 0.01 to 9.99mL/min)
80µL
Isocratic: 1 types, gradient: 2 types

Suppressor pump unit 7591950U

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Built-in models	ICA-7000 main unit
Liquid delivery system	Peristaltic tube pump
Flow rate range	0 to about 1.0mL/min
Dimensions	Approx. 80 (W) \times 140 (H) \times 190 (D) mm (without protrusions)
Mass	About 0.9kg

Chemical suppressor 6813690K

Suppressor volume	150µL
Maximum eluent flow rate	2.0mL/min
Operating pressure	1MPa or less
Use pH	pH1 to pH13
Dimensions	ϕ 21.5mm× Length 130mm (Max. dimensions of protrusion: Approx. 30mm)

Autosampler ICA-700AS

Display	Backlit LCD	Material of wet part	PEEK, ETFE, β titanium
Sample container	1.5mL dedicated container	Operating temperature range	4 to 35°C
Injection volume of sample	1 to 1000 μL (1 μL step)	Cool (optional)	Presence/absence
Number of samples	Up to 100 samples (50 samples x 2),	Power supply	AC100 to 240V 50/60Hz
Number of samples	Up to 50 samples in dilution mode	Power consumption	Max. 20VA
Sample injection type	Loop mode	Dimensions	263(W) × 220 (H) × 416 (D) mm
Sample injection type	Injection mode (only for 1ch spec.)	Mass	11.8kg
Injection volume repeatability	Injection: 0.5%RSD		

Electrochemical detector ICA-5212 -

Common Specifications

How to connect ICA-7000	Take in data processing software, through an analog input terminal.
Method	3-pole potentiostat
Range of voltage setting	0 to \pm 1.99V(10mV steps).
Zero adjustment	Zero auto (can be externally controlled)
Zero adjustment range	Entire measuring range
Polarity switching	Exists
Cell capacity	0.4µL×2
Flow cell withstand voltage	1MPa
Flow cell solutions contact part material	FEP、PCTFE、SUS316
Detection part	Working electrode (glassy carbon, platinum*, gold*, silver*) Refer to electrode (sweet rice) and counter electrode (SUS316) * are optional
Operating temperature range	10 to 40°C
Response	FAST (about 2s), MIDD (about 4s), and SLOW (about 9s)
Analog output	0 to 1V FS (integrator) 0 to 10mV FS (Range) (Recorder)
Power supply	AC100V 50/60Hz
Power consumption	About 13VA
Dimensions	Approx. 290 (W) x 61 (H) x 462 (D) mm
Mass	About 10kg

Normal mode specifications

Measurement range	0 to ±1024nA	
Measurement range	0.1 to 102.4nA (×1) I1 range	1 to 1,024nA(×10) I1 range
Output mode	11(ch1 only), 12(ch2 only), 11+12, 11-12	

Pulse Mode Specifications

Measurement range	0 to ±102.4µA
Measurement range	0.01-10.24µA (×1, ch2 only) I1 range 0.1 to 102.4µA (× 10) I1 range
Output mode	I1=ch1 (normal mode), I2=ch2 (pulse mode)
Time setting range	Pulse mode T1=50 to 990mS T3=0 to 990mS Tad=50mS

Main column specifications

ltem	Model name	Application / main target ion	Size(I.D.xLength)mm	Material	Use pH
	PCI-2015	Non-suppressor analysis and inorganic anions	4.6×100	SUS	pH2 to pH8
	PCI-211	Non-suppressor analysis and inorganic anions	4.6×100	SUS	pH2 to pH8
	PCI-205	Suppressor analysis and inorganic anions	4.0×250	PEEK	pH3 to pH12
	PCI-206	Suppressor analysis and inorganic anions (Features are the separation of halogen acid ion)	4.0×150	PEEK	pH2 to pH12
	PCI-230	Suppressor analysis (Features of separation of acetic acid, formic acid and inorganic anion) Can also be used as columns for non-suppressor analysis	4.6×150	PEEK	pH3 to pH12
For anion analysis	PCI-240	Suppressor analysis and inorganic anions (The separation between halogen acid and standard seven anions is advantageous.)	4.0×250	PEEK	pH3 to pH12
	PCI-245	Suppressor analysis and inorganic anions (Features of separation of halogen acid and standard seven anions)	4.0×150	PEEK	pH3 to pH12
	AN1	Suppressor analysis and inorganic anions (Features in the separation of sulfate and sulfite)	4.6×250	PEEK	pH1 to pH14
	AN300B	Suppressor analysis and inorganic anions (Features in the separation of phosphorous acid, phosphoric acid, sulfurous acid and sulfate ion)	4.6×250	PEEK	pH1 to pH13
	PCI-290	Suppressor analysis and inorganic anions (Sodium hydroxide can be used as eluent)	4.0×150	PEEK	pH3 to pH13
	PCI-201SG	Guard columns for PCI-201S	4.6×10	SUS	pH2 to pH8
Anion guard column	PCI-211G	Guard columns for PCI-211	4.6×10	SUS	pH2 to pH8
Anion guard column	PCI-205G	Guard columns for PCI-205/206/230/240/245/290, AN1	4.6×10	PEEK	pH2 to pH12
	AN300BG	AN300B guard column	4.6×50	PEEK	pH1 to pH13
	PCI-302H	Non-suppressor analysis, alkali metal ion and ammonium ion analysis, Analysis of alkaline earth metal ions by changing the eluent	4.6×150	PEEK	pH2 to pH12
For cation analysis	PCI-322	Non-suppressor analysis and simultaneous analysis of alkali metal ions and alkaline earth metal ions. Improved peak shape for magnesium and calcium ions. (Features the separation ability of sodium and ammonium)	4.6×250	SUS	pH2 to pH12
	PCI-390	Suppressor analysis, alkali metal ions, and alkaline earth metal ions	4.0×250	PEEK	pH2 to pH12
	PCI-302HG	Guard columns for PCI-302H	4.6×10	PEEK	pH2 to pH12
Cation guard column	PCI-322SG	Guard columns for PCI-322	4.6×10	SUS	pH2 to pH7
	PCI-390G	Guard columns for PCI-390	4.0×10	PEEK	pH2 to pH12
Column for organic acid analysis	PCI-306	Analysis of organic and weak acids	6.0×250	SUS	pH1 to pH7
Organic acid analysis guard column	PCI-305SG	Guard columns for PCI-306	4.6×50	SUS	pH1 to pH7
Column for saccharide analysis	PCI-510	For saccharide analysis (Sodium hydroxide can be used as eluent)	4.6×250	PEEK	pH1 to pH14
Saccharides analysis guard column	PCI-510G	Guard columns for PCI-510 (Constructed of one holder and five discs) * If you are purchasing for the first time, please select this option.	4.6×1.0	PEEK	pH1 to pH14
	PCI-510GD	PCI-510G replacement disc (5 discs only)	4.6×1.0	PEEK	pH1 to pH14

Note (1) Typical items are described for the application and main measurement target ions.

Note (2) The column used may be changed depending on the measurement items and the measurement contents.

Note (3) Please contact us for proper column selection.

Note (4) Improvements to the column will be made without prior notice.





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Please read the operation manual carefully before using products.

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