

# ION ANALYSIS



# Multi Ion Analysis

## Batch or Continuous analysis system.

- Up to six electrodes plus temperature probe in a reduced space
- Real-time results
- Customizable
- Based on a Laboratory technique
- Minimum sample volume required (~10 mL)



ISE Multi Ion Modular

Multi parameter measuring system accessible to everyone

## ISE Multi Ion Modular

Multi Ion Modular defines a new concept of multi-parametric analysis. It is based on a classic chemistry analytical technique combined with the latest advances in nanotechnology. It allows the real-time analysis of a wide-range of ions, inside and outside from a laboratory. The revolutionary design of the Modular Multi Ion probe maintains the versatility and performance of

the classic ISE Multi Ion probes but with improved characteristics and best operational performance.

Pollution monitoring, real-time clinical diagnosis, study of the evolution inside micro-reactors or, nutrient control, are some examples from the real need of ion analysis.

***“A new concept of analysis”  
“Reliable, fast and easy”***

## Characteristics

The probe of only 25 mm diameter incorporates from 2 to 6 ion selective electrodes, a reference electrode, and a temperature sensor.

Ions configuration relies on the applications, and it is customizable upon the sample requirements.

The unit comprising the electrodes is designed with a protection against accidental damage with a threaded ending.

**Interchangeable:** the individual electrodes are simple and fast assembled in the probe. The user can select and plug/unplug only the required electrodes in each analysis.



Detail of the mini-coaxial connector (electrode)

**Upgradeable:** replacement or addition of sensors on demand.

Single electrodes, are fixed into the holder within the miniaturized coaxial connector, that protects from interferences .



*Robust design, sensors remain protected.*

*Available Ions:  
Ammonium (NH<sub>4</sub><sup>+</sup>),  
Calcium (Ca<sup>2+</sup>),  
Chloride (Cl<sup>-</sup>),  
Potassium (K<sup>+</sup>),  
Magnesium (Mg<sup>2+</sup>),  
Nitrate (NO<sub>3</sub><sup>-</sup>),  
Nitrite (NO<sub>2</sub><sup>-</sup>),  
Sodium (Na<sup>+</sup>),  
pH , among others.*

# Multi Ion Analysis



## NTX Ion Meter

- Communication and power supply through the USB cable (PC)
- Compact & portable
- Includes a BNC connector BNC compatible with any ion selective electrode from the market

## NTx ION Meter: a simple way to obtain accurate results

NTx Ion Meter” has been designed with the aim to obtain fast, reliable and accurate results, taking advantage of the properties and performance of the ISE Multi Ion Modular probes.

The meter, in one hand can operate batch measurements in multiple samples. At the other hand, its software allows to follow the continuous evolution of samples, due to its ability of monitoring processes.

The quality control, the yield in production process or the direct diagnosis of problems associated with the concentration of ions, are few examples with requirements a good data control and treatment. In this way, the NTx

Ion Meter runs together with a PC or laptop, no other external power supply is required. (It is just necessary to connect the USB cable to a PC to start measuring).

Reduced dimensions and light weight, allow performing local direct measurements with a laptop.

The Multi Ion Kit incorporates the NTx Ion meter and a Multi Ion Modular probe. The probe is connected through a multi-pin connector. The meter also includes a BNC connector compatible with classic electrodes for single ion measurement applications.

***“Suitable to laboratory and field analysis”***

## Auto-Wizard Software

With the acquisition of a NT Ion Meter, there is included a high-potential software, running under Windows platform.

The software enables the analysis by advanced users, with parameters detail, versatility in sample measure and monitoring processes. Also the auto-wizard is very intuitive, making it possible for a non-technical users to obtain measurements with high analytical precision.

Simultaneous calibration of all the ions contained within the probe, or customizable independent calibration are available.

It allows to store customized calibration solutions in a database. The user selects the calibration solution data according to the sample that is going to be measured.

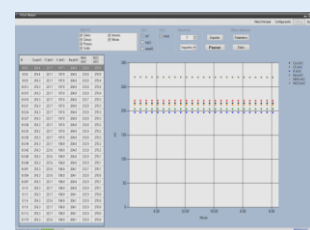
Units output in mg/L or mmol/L. Real-time monitoring capability, up to 7 independent channels (concentrations or mV) plus temperature.

The software automatically exports the recorded measurements to a datasheets. The generated files contain all the experimental data.

***“Nanotechnology applied to the requirements of your own business”***



*Multi Ion probe with 6 ISE, pH and temperature*



*Interactive plots at real-time. Auto-wizard on calibration and measuring processes.*



# Analysis kits



## The Lab on Hand

### POTENTIOMETRY:

Classical laboratory technique for the analysis of ionic species in aqueous solutions. Fast, simple and reliable. Can be used in a wide range of applications. Non-destructive technique, minimum consumption of sample and reagents. Does not require any pretreatment: wide measuring ranges, can work in turbidity and colored samples.

### IMA CIMUS-7



Portable Analysis System, for up to 7 macronutrients + pH info at once, includes:  
 Multichannel ion meter  
 Modular multi ion Probe  
 pH Electrode  
 Calibration Set case  
 Software Multi ion pH+ ( Windows)  
 USB Cable for connection and power supply

### IMA LAB



Desktop Ion meter, **two** channels. Includes:  
 Capacitive 7" screen (Tablet)  
 Electrodes holder  
 APP Android software  
 USB cable for connection and power supply.

### NTx-IMP10



Multichannel ion meter NTx-IM, with:  
 Multi pin connector for Modular multi ion Probe  
 Standard BNC connector.  
 8 measure channels.  
 PC / laptop software (Windows)  
 USB cable for connection and power supply

### NT1 IM



Compact **One** Channel Ion meter for PC / laptop. With software & USB cable for connection and power supply included.

### NT2 IM



Compact **Two** Channels Ion meter for PC / laptop. With software & USB cable for connection and power supply included.

### NTx-IMHP

Multichannel ion meter NTx-IM, with:  
 Multi pin connector for Modular multi ion Probe  
 Standard BNC connector.  
 8 measure channels + **Temperature**.  
 PC / laptop software (Windows)  
 USB cable for connection and power supply

# Ion Selective Electrodes



## ELECTRODES

- *Multi Ion Modular Probe*



## Multi Ion Probe

The Multi Ion probe provides simultaneous information of up to 7 elements (Ca<sup>2+</sup>, Cl<sup>-</sup>, K<sup>+</sup>, Na<sup>+</sup>, NH<sub>4</sub><sup>+</sup>, NO<sub>3</sub><sup>-</sup>, Mg<sup>2+</sup>) & pH. Measurement just takes the same time as a classic pH measurement.

***“Just 1 minute per sample”***  
***“Data is obtained simultaneously for 8 parameters.”***

Calibration is done simultaneously (Specific design of standards for calibration of all Ions)

You can do a direct measurement of the sample, no filtering, no dilutions, no interference by solids or turbidity or color from the sample and no reagents needed

Easy replacement and upgrade of individual electrodes. In a 25mm diameter handy



(replacement electrode)

The electrode can be stored dry and is very suitable to be used in lab or in field.

## Selection

The Modular multi ion Probe for up to 7 modular ion selective electrodes is available in two versions, the **B257-P10** for 7 modular ion selective electrodes and the **B257-HP** for 7 modular ion selective electrodes and a **temperature** probe.



*Multi Ion Modular Probe*

Element	Range			Part number
	Ion	mg/L	mmol/L	
Ammonium	NH <sup>4+</sup>	0,2 - 9.000	0,01 - 500	MD018
Calcium	Ca <sup>2+</sup>	0,4 - 4.000	0,01 - 100	MD040
Chloride	Cl <sup>-</sup>	1,5 - 35.000	0,05 - 1.000	MD035
Nitrate	NO <sup>3-</sup>	0,6 - 6.000	0,01 - 100	MD062
Potassium	K <sup>+</sup>	0,4 - 3.900	0,01 - 100	MD039
Sodium	Na <sup>+</sup>	2,3 - 23.000	0,1 - 1.000	MD023
Magnesium	Mg <sup>2+</sup>	2,4 - 2.400	0,1 - 100	MD024
pH*		0 - 14		32105209

(\*The pH electrode is a common pH electrode which is also used as a reference electrode)

# Ion Selective Electrodes



## Electrodes

- Combination Ion Selective Electrodes

## Full range of Combination Ion Selective Electrodes

Our Ion Selective Electrodes are rugged Solid State sensors with built in reference electrode that do not require any filling solution or maintenance, they can be left dry for long periods and have a long lifetime.

***“Standard Ion Selective performance is surpassed under both laboratory and field conditions.”***

The electrodes are waterproof and fully submersible. This gives the field operator the ability to cast the probe into the water from awkward sample points, bridges, banks and boats. As standard the electrodes are fitted with 1 meter of cable and a BNC connector.

The ISE's are very suitable for laboratory or field use. For comparisons on technical specification, see below table.

### Benefits:

- No reference electrode needed
- Available in fully submersible and water proof format
- Solid state sensors
- Ideal for unskilled operatives
- No filling solution required
- Very robust
- Can be left dry for long periods
- Long lifetime

Order No.	Description	Concentration	Limits (ppm)	Temp Range °C	Main interference's	pH Range
371-01	Silver (Ag <sup>+</sup> )	10 <sup>0</sup> – 1 x 10 <sup>-7</sup>	0.01 - 107,900	5 - 50	S <sup>-</sup> , Hg <sup>++</sup>	1 - 9
368-01	Barium (Ba <sup>2+</sup> )	10 <sup>-1</sup> – 10 <sup>-5</sup>	1.4 - 13,000	0 - 50	Sr <sup>++</sup> , K <sup>+</sup> , Na <sup>+</sup>	3 - 10
375-01	Bromide (Br <sup>-</sup> )	1 – 5 x 10 <sup>-6</sup>	0.4 - 81,000	5 - 50	I <sup>-</sup> , CN <sup>-</sup> , S <sup>-</sup>	1 - 12
361-01	Calcium (Ca <sup>2+</sup> )	10 <sup>-1</sup> – 5 x 10 <sup>-7</sup>	0.02 - 4,010	0 - 50	Ba <sup>++</sup> , Al <sup>+++</sup> , Sr <sup>++</sup>	3.5 - 8
373-01	Cadmium (Cd)	10 <sup>-1</sup> – 1 x 10 <sup>-6</sup>	0.1 - 11,200	5 - 50	Hg <sup>++</sup> , Ag <sup>+</sup> , Cu <sup>++</sup>	3 - 7
364-01	Chloride (Cl <sup>-</sup> )	1 – 3 x 10 <sup>-6</sup>	1 - 35,000	5 - 50	I <sup>-</sup> , Br <sup>-</sup> , CN <sup>-</sup> , S <sup>-</sup>	2 - 12
367-01	Perchlorate (ClO <sub>4</sub> <sup>-</sup> )	1 – 2 x 10 <sup>-6</sup>	0.2 - 99,500	0 - 50	I <sup>-</sup> , SCN <sup>-</sup> , NO <sub>3</sub> <sup>-</sup>	1 - 11
377-01	Cyanide (CN <sup>-</sup> )	10 <sup>-2</sup> – 1 x 10 <sup>-6</sup>	0.03 - 260	5 - 50	I <sup>-</sup> , S <sup>-</sup> , Br <sup>+</sup>	11 - 13
379-01	Copper (Cu <sup>2+</sup> )	10 <sup>0</sup> – 1 x 10 <sup>-7</sup>	0.006 - 64,000	5 - 50	Hg <sup>++</sup> , Ag <sup>+</sup> , S <sup>-</sup>	2 - 7
365-01	Fluoride (F <sup>-</sup> )	10 <sup>-1</sup> – 1 x 10 <sup>-6</sup>	0.02 - 1,900	5 - 50	CH <sup>-</sup>	4 - 8
376-01	Iodide (I <sup>-</sup> )	1 – 5 x 10 <sup>-7</sup>	0.06 - 127,000	5 - 50	CN <sup>-</sup> , S <sup>-</sup>	2 - 12
366-01	Potassium (K <sup>+</sup> )	1 – 10 <sup>-6</sup>	0.04 - 39,000	0 - 50	Cs <sup>+</sup> , NH <sub>4</sub> <sup>+</sup>	1 - 9
C007	Lithium (Li <sup>+</sup> )	10 <sup>-5</sup> – 0.7	0.1 - 5,000	5 - 50	H <sup>+</sup> , K <sup>+</sup> , Na <sup>+</sup>	2 - 12
C024	Magnesium (Mg <sup>2+</sup> )	10 <sup>-4</sup> – 0.1	2.4 - 2,400	5 - 50	Ca <sup>+</sup> , K <sup>+</sup> , Na <sup>+</sup>	3 - 8.5
315-01	Sodium (Na <sup>+</sup> )	3 – 10 <sup>-7</sup>	0.002 - 69,000	0 - 50	Ba <sup>++</sup> , Li <sup>+</sup> , K <sup>+</sup>	1 - 9
321-01	Ammonia Gas (NH <sub>3</sub> <sup>+</sup> )	1M – 10 <sup>-6</sup> M	0.02	0 - 50	Hydrazine and Aliphatic Amines	11 - 13
362-01	Ammonium (NH <sub>4</sub> <sup>+</sup> )	0.5 – 5 x 10 <sup>-5</sup>	0.9 - 9,000	0 - 50	K <sup>+</sup> , Na <sup>+</sup>	4 - 8.5
C046	Nitrite (NO <sub>2</sub> <sup>-</sup> )	5.4x10 <sup>-5</sup> – 0.02	2.5 - 1,000	5 - 50	Br <sup>-</sup> , ClO <sub>4</sub> <sup>-</sup> , I <sup>-</sup> , SCN <sup>-</sup>	4 - 8
360-01	Nitrate (NO <sub>3</sub> <sup>-</sup> )	1 – 7 x 10 <sup>-6</sup>	0.4 - 62,000	0 - 50	Cl <sup>-</sup> , NO <sup>-</sup>	2 - 11
372-01	Lead (Pb)	10 <sup>-1</sup> – 1 x 10 <sup>-6</sup>	0.02 - 20,800	5 - 50	Hg <sup>++</sup> , Ag <sup>+</sup> , Cu <sup>++</sup>	3 - 7
378-01	Sulphide (S <sup>2-</sup> )	1 – 1 x 10 <sup>-7</sup>	0.003 - 3,200	5 - 50	Hg <sup>++</sup> , Ag <sup>+</sup>	13 - 14
380-01	Thiocyanate (SCN <sup>-</sup> )	10 <sup>-1</sup> – 2 x 10 <sup>-6</sup>	1 - 5,800	5 - 50	I <sup>-</sup> , Cl <sup>-</sup> , S <sup>-</sup> , Br <sup>-</sup>	2 - 12
SURFACTANT	Surfactant	-	-	0 - 30	-	2 - 12
370-01	Water Hardness	2 x 10 <sup>-1</sup> - 5 x 10 <sup>-5</sup>	-	0 - 50	Ba <sup>++</sup> , Cd <sup>++</sup> , Cu <sup>++</sup>	4.5 - 10

(\*For all of the above Ion Selective Electrodes we have available calibration standards in ppm and mol/L concentrations and Ion Strength Adjustment Buffers (ISAB) )

# Applications



## Application Methods

- Available for Ion Selective Electrodes



## Application Methods

To help you get started with your application we already have available a complete set of application methods.

This will save you time and afford, please have a look at below list:

- Aluminium Ions Using a Fluoride ISE
- Ammonia in Seawater
- Ammonia in Water
- Bromide in Water
- Cadmium using a Silver ISE
- Calcium in Animal Foodstuffs
- Calcium in Fruit Juice
- Calcium in Beer
- Calcium in Meat Products
- Calcium in Seawater
- Calcium in Serum
- Calcium in Skimmed Milk
- Calcium in Soil
- Calcium in Urine
- Chloride in Batter Mix and Sausage Rusk
- Chloride in Butter
- Chloride in Potato Starch Suspension
- Chloride in Fruit Juice
- Chloride in Mayonnaise
- Chloride in Serum
- Chloride in Urine
- Chloride in Water
- Chlorine in Water
- Cyanide (General)
- Cyanide in the Presence of Heavy Metal Ions
- Cyanide in Water
- Fluoride in Glass
- Fluoride in Urine
- Fluoride in Drinking Water
- Fluoride in Water
- Fluoride in Welding Ash Solution
- Fluoride in Vegetation
- Iodide in Water
- Kjeldahl Nitrogen in Water
- Lead Using a Silver ISE
- Magnesium in Solutions Free from Other Divalent Cations
- Nitrate in Liquor used for Beer Preparation
- Nitrate in Plant Tissue
- Nitrate in Soils
- Nitrate in Water
- Nitrogen by Ammonia ISE
- Phosphate Using a Fluoride ISE
- Potassium in Fruit Juice
- Potassium in Glass
- Potassium in Oral Rehydration Salts
- Potassium in Pharmaceutical Syrup
- Potassium in Soils
- Potassium in Water
- Potassium in Wine
- Silver in Fixer Solutions
- Silver in Fixer Solutions II
- Sodium in Dietetic Food
- Sodium in Glass
- Sodium in Oral Rehydration Salts
- Sodium in Peanut Butter
- Sodium in Pharmaceutical Syrup
- Sodium in Serum
- Sodium in Water
- Sulphate by Sample Subtraction
- Sulphide in Water
- etc...





Your professional dealer: