

SFRI

Medical Diagnostics



ISE SERIES

Ion Selective Electrode Analyzers
To Each his own ISE

ISE SERIES

An Electrolyte Analyzer Adapted to Every Need



The SFRI ISE SERIES is a wide range of fully automated electrolyte analyzers, that allows laboratories to perform accurate and reliable measures of electrolyte levels in the blood and urine. The analyzers are powerful independent tools designed to quickly and efficiently conduct basic electrolyte testing, without the need for any external resources, or additional computing power.

The ISE SERIES can measure up to 7 different parameters: Sodium, Potassium, Chloride, Calcium, Lithium and pH levels using Ion Selective Electrode technology; and Bicarbonates (TCO₂) using the Manometric method. It also automatically calculates Total Calcium and the Anion Gap, useful in emergency and intensive care medicine. The series is composed of 6 different instrument models, each designed to specifically target different laboratory needs.



ISE 2000	ISE 3000
ISE 4000	ISE 4500
ISE 5000	ISE 6000

MODEL	TESTS
2000	Na ⁺ , K ⁺
3000	Na ⁺ , K ⁺ , Cl ⁻
4000	Na ⁺ , K ⁺ , Cl ⁻ , TCO ₂ , A.G.
4500	Na ⁺ , K ⁺ , Cl ⁻ , Li ⁺
5000	Na ⁺ , K ⁺ , Cl ⁻ , iCa ²⁺ , TCa ²⁺ , pH
6000	Na ⁺ , K ⁺ , Cl ⁻ , iCa ²⁺ , TCa ²⁺ , TCO ₂ , pH, A.G.

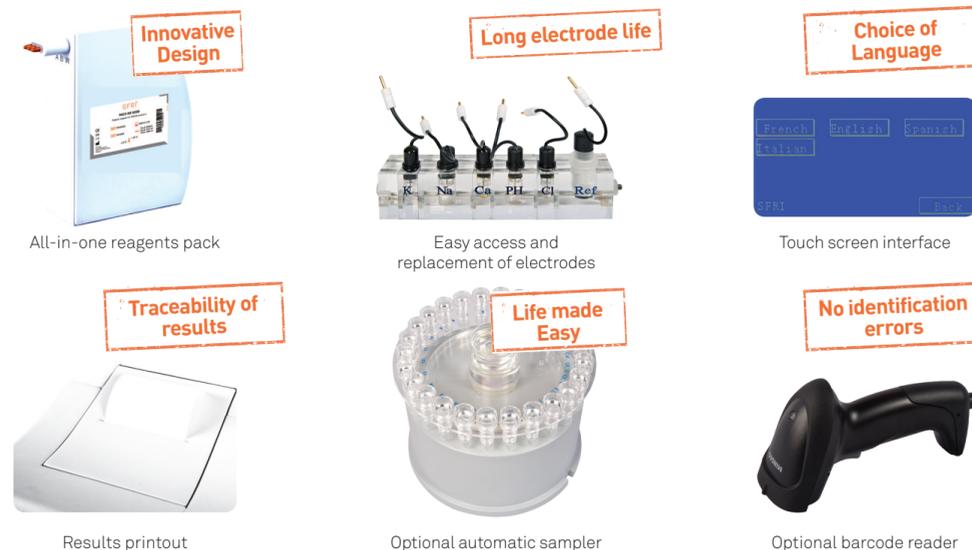
Optimized Efficiency

Thanks to its automatically performed 2 point calibration every 4 hours, results are accurate with good reproducibility through time (automatic curve compensation is available). 1 point calibration is also ensured with every sample. Optional barcode reader allows for quick and easy identification of samples.

User-friendly Operations

The interactive touch screen, large display and user-friendly interface make for a trouble-free and effortless working experience. All ISE models are equipped with a 24 hour non-stop working mode suitable for emergency sample analysis.

The built-in operating system alerts operators when reagent levels are low or a new pack is required. Electrodes and reagent packs snap in and out for easy replacement. Error alerts appear on print-out if values are abnormal.



Automation and Auto Sampling

Automation for high productivity is guaranteed by the automatic control software for aspiration, washing and calibration. Results display and print-out automatically. All models can be upgraded to ensure higher automation thanks to the optional auto sampler. Operators can program a series of up to 20 tests at one time, all the while being able to run emergency tests if necessary. All results can be transferred to lab's IT network via mono directional LIS.

With its programmable tests, and disposable cups, the auto sampler makes for a hassle-free work process.

Reagent Pack

The ISE SERIES is manufactured with a built-in disposable all-in-one reagents pack for quick and easy replacement of reagents. Each Pack contains 1 L of solution and is automatically identified by RFID. No liquid handling is necessary; no risk of hook-up errors can be made. The waste bag is integrated in the Pack*, eliminating any risk of contamination.

*In the ISE 4000 and 6000 models, the pack contains Cal A, Cal B and TCO₂ reagent. Waste is as external container.

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Ergonomic and Economical Design Features

Easy and Simple Maintenance

The advanced design of hardware, fluid tubing system and self-diagnosis software, make maintenance and troubleshooting easy and simple.

Low Operating Costs

The excellent quality of electrodes, high stability of reagents, and low consumption rate, make the ISE SERIES a very cost efficient analyzer.

Productivity and precision

The ISE renders results in only 60s and can store up to 250 patient files. It uses only 150 µl of sample volume and measures directly, without dilution, for faster measuring time. With its low CV, wide linear range, high performance electrodes and unique calibration programs, designed to eliminate systematic errors, the ISE models are reliable and accurate.



The ISE 4000 and 6000 TCO₂ Module for Easy Bicarbonate Determination

The ISE 4000 and 6000 are both equipped with the TCO₂ module; an invaluable function that allows for the analysis of bicarbonates in the blood. This test measures the level of bicarbonates (HCO₃⁻) in a sample of blood or urine. It is usually ordered in addition to the standard electrolyte panel to measure the severity of an acid-base imbalance in the blood, determine its origin (respiratory or metabolic) and monitor treatment. A carbon dioxide (bicarbonate) test helps find and keep track of conditions that affect blood bicarbonate levels, including many kidney diseases, some lung diseases, and metabolic conditions.

Whereas the majority of biochemistry analyzers measure the concentration of the main ions, such as Sodium, Potassium, Calcium and Chloride, only a few analyzers, including ISE 4000 and 6000, are equipped with the necessary module to determine bicarbonate (HCO₃⁻) levels, thanks to the measure of TCO₂ or Total Carbon Dioxide, that is to say the CO₂ in the blood after reaction with lactic acid.

- Both SFRI ISE 4000 and 6000 use the Van Slyke Manometric method of analysis to determine total CO₂, by measuring the pressure of CO₂ in samples after reaction with lactic acid.
- TCO₂ calibration is very stable thanks to stable reagents and a simple analysis method.
- No expensive and unstable enzymatic reagents are required for this test ensuring more reliable results.
- Excellent correlation between Manometric method and standard enzymatic method ensures results are precise and reproducible.

Thanks to the measurement of bicarbonate levels in the blood, the ISE 4000 and 6000 allow operators to calculate the Anion Gap. Often used in intensive and critical care medicine, calculating the Anion Gap is clinically useful, as it helps in the differential diagnosis of a number of disease states, such as metabolic and lactic acidosis, metabolic alkalosis, etc.

ISE SERIES

TECHNICAL SPECIFICATIONS

ISE SERIES: REFERENCE A0400 TO A0405

ISE AUTOLOADER: REFERENCE A0406

PRINCIPLES

Ion Selective Electrode direct measurement
Manometric method for TCO₂

SAMPLES

150 µl: Whole blood, serum, plasma and urine
Specific modes for urine and lipemic serum

THROUGHPUT

60 tests per hour without TCO₂
45 tests per hour with TCO₂

DETECTION RANGE

Whole blood, serum and plasma

K ⁺	0.5 – 15.0 mmol/L
Na ⁺	20 – 200 mmol/L
Cl ⁻	20 – 200 mmol/L
Li ⁺	0.2 – 3.0 mmol/L
Ca ²⁺	0.1 – 5.0 mmol/L
pH	4.0 – 9.0 pH
TCO ₂	6.0 – 50.0 mmol/L

Urine

K ⁺	50 – 250 mmol/L (pre-diluted)
Na ⁺	10 – 350 mmol/L
Cl ⁻	10 – 350 mmol/L

ACCURACY AND REPRODUCIBILITY

	Accuracy	Reproducibility
K ⁺	±0.2 mmol/L	< 1.0%
Na ⁺	±2.0 mmol/L	< 1.0%
Cl ⁻	±2.5 mmol/L	< 1.0%
Li ⁺	±0.1 mmol/L	< 3.0%
Ca ²⁺	±0.1 mmol/L*	< 2.0%
pH	±0.1	< 1.0%
TCO ₂	±2.0 mmol/L*	< 3.0%

*for plasma only

Quality Control

Two levels with optional auto sampler
One level without auto sampler

Calibration

Automatic: 2 points every 4h or on demand

MEMORY STORAGE

256 patient files x 5 parameters each
Transfer LIS mono-directional

REAGENTS PACK

Shelf life: 12 to 18 months
Standard Pack: Cal A, Cal B, Waste
Pack for ISE 4000 & 6000: Cal A, Cal B, TCO₂ reagent

ELECTRODES

Long life: up to 5 years (6 months for Ca²⁺)
12 month warranty (6 month warranty for Ca²⁺)

INPUT/OUTPUT

Barcode interface (optional barcode)
RS232 port for mono-directional LIS

PRINTOUT

Fast thermal printer, 57.5 mm wide paper, recording width
48 mm

DISPLAY

5" LCD touch screen with monochrome display
Multilingual interface: English, French, Spanish and Italian

OPERATING ENVIRONMENT

Temperature 15°C – 32°C
Humidity < 85% (max humidity)

POWER REQUIREMENTS

A.C. 110/220 V ±10%; 50 – 60 Hz
Power : < 60 W

DIMENSIONS

390(W) x 445(H) x 340(D) mm

WEIGHT

Main unit : 10 kg;
Auto sampler : 1.5 kg

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Your Local Distributor:

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