# SFR Medical Diagnostics



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 laboratoryneeds.



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

MODEL	TESTS	
2000	Na⁺, K⁺	
3000	Na*, K*, Cl <sup>-</sup>	
4000	Na <sup>+</sup> , K <sup>+</sup> , Cl <sup>-</sup> , TCO <sub>2</sub> , A.G.	
4500	Na⁺, K⁺, Cl⁻, Li⁺	
5000	Na⁺, K⁺, Cl⁻, iCa²⁺, TCa²⁺, pH	
6000	Na <sup>+</sup> , K <sup>+</sup> , Cl <sup>-</sup> , iCa <sup>2+</sup> , TCa <sup>2+</sup> , TCO <sub>2</sub> , 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 guick 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.



Results printout

Optional automatic sampler

# **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.

Optional barcode reade

# **ISE SERIES 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 TCO, Module for Easy Bicarbonate Determination

The ISE 4000 and 6000 are both equipped with the TCO<sub>2</sub> module; an invaluable function that allows for the analysis of bicarbonates in the blood. This test measures the level of bicarbonates  $(HCO_2^{-1})$  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.

Potassium, Calcium and Chloride, only a few analyzers, including ISE 4000 and 6000, are equipped with the necessary the  $CO_2$  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 CO<sub>2</sub>, by measuring the pressure of CO<sub>2</sub> in samples after reaction with lactic acid.
- TCO<sub>2</sub> calibration is very stable thanks to stable reagents and a simple analysis
- 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



# ISE **SERIES**

# **TECHNICAL SPECIFICATIONS ISE SERIES: REFERENCE A0400 TO A0405 ISE AUTOLOADER: REFERENCE A0406**

#### PRINCIPLES

Ion Selective Electrode direct measurement Manometric method for TCO<sub>2</sub>

#### SAMPLES

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

#### THROUGHPUT

60 tests per hour without TCO<sub>2</sub> 45 tests per hour with TCO<sub>2</sub>

# DETECTION RANGE

Whole blood, serum and plasma			
K+	0.5 – 15.0 mmol/L		
Na <sup>+</sup>	20 – 200 mmol/L		
Cl-	20 – 200 mmol/L		
Li <sup>+</sup>	0.2 – 3.0 mmol/L		
Ca <sup>2+</sup>	0.1 – 5.0 mmol/L		
pН	4.0 – 9.0 pH		
TCO <sub>2</sub>	6.0 – 50.0 mmol/L		

#### Urine

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

#### ACCURACY AND REPRODUCIBILITY

	Accuracy	Reproducibilit	
K+	±0.2 mmol/L	< 1.0%	
Na <sup>+</sup>	±2.0 mmol/L	< 1.0%	
Cl	±2.5 mmol/L	< 1.0%	
Li⁺	±0.1 mmol/L	< 3.0%	
Ca <sup>2+</sup>	±0.1 mmol/L*	< 2.0%	
рН	±0.1	< 1.0%	
TCO <sub>2</sub>	±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, TCO<sub>2</sub> reagent

#### ELECTRODES

Long life: up to 5 years (6 months for Ca<sup>2+</sup>) 12 month warranty (6 month warranty for Ca<sup>2+</sup>)

#### **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**

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

Your Local Distributor:

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