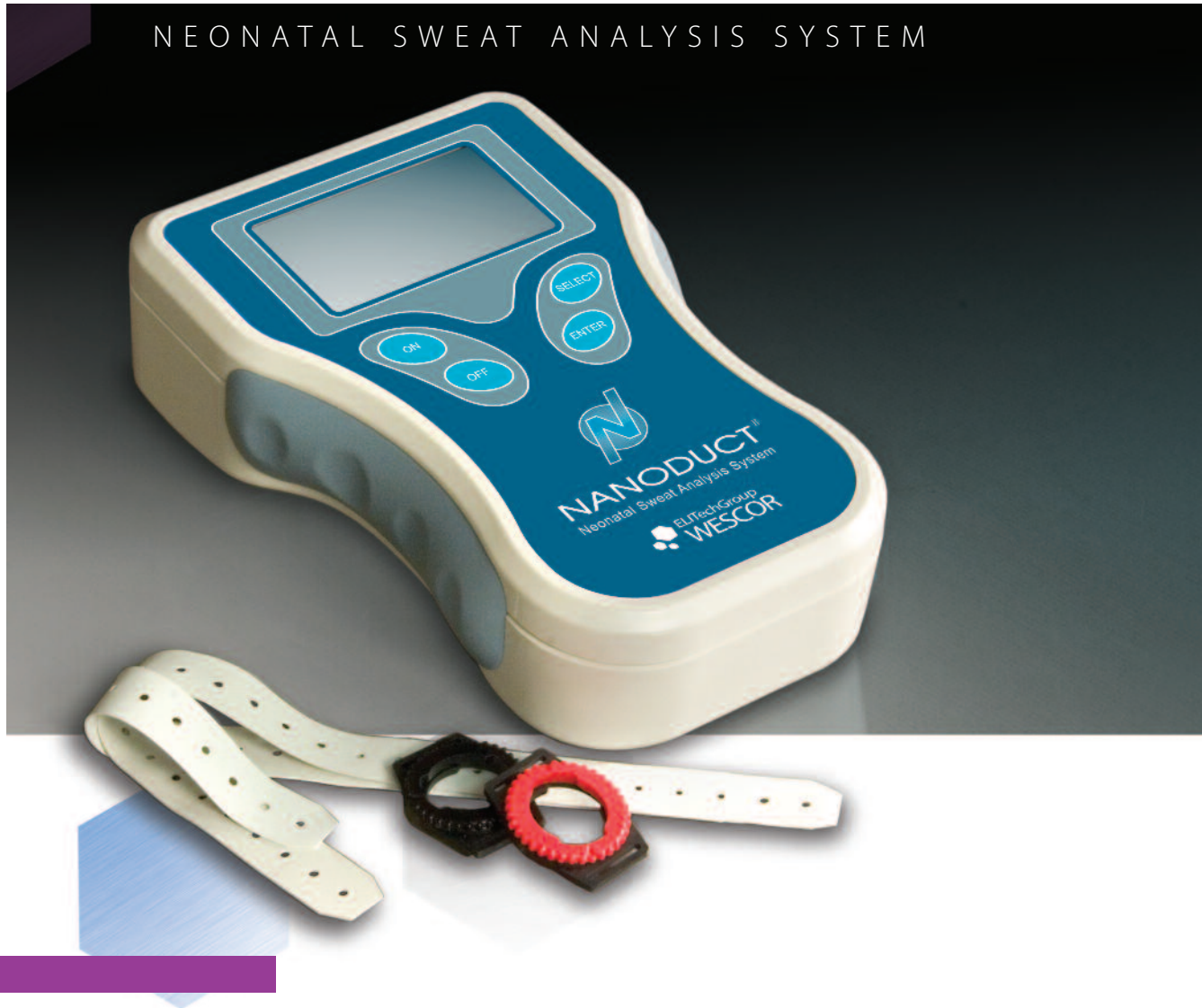
BIOMEDICAL SYSTEMS

Nanoduct®

NEONATAL SWEAT ANALYSIS SYSTEM



Laboratory CF Diagnosis in the first days of life

ELITechGroup
BIOMEDICAL SYSTEMS

NANODUCT NEONATAL SWEAT ANALYSIS SYSTEM

Initial Sweating Rate Displayed Automatically

As soon as sweat enters the microconductivity cell, the display alerts the operator. After a very short interval, the display reads out the initial sweating rate and gives continuous readings of real-time conductivity.

Requires Only 3 Microliters of Sweat!

The miniscule conductivity sensor allows a reading at only 3 microliters of sweat, which, for reasonably mature glands usually happens within 6 minutes after applying the sensor.

Shorter Stimulation Time

Improved Pilogel Iontophoretic Discs yield maximal gland stimulation after 2.5 minutes of iontophoresis at 0.5 mA total current, which is desirable both in safety and time of involvement for neonates.

Neonate-to-Adult Capability

While the Nanoduct is designed for neonates, it works equally well on patients of any age.

Automatic Averaging of Conductivity

The instrument automatically waits 3 minutes after the first display of conductivity, then commences a 5-minute averaging period, and displays the resultant average value as the reportable diagnostic result.

Compact Hand-Held Unit

Nanoduct's trim, hand-held case simplifies handling, set-up, and operation.

Lab Report Software

The addition of a USB port allows a Windows-formatted computer interface providing printed test results–a valuable feature of the new Nanoduct.

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It is vital to perform this test as soon as possible after birth. With Nanoduct it becomes extremely simple and reliable.

Nanoduct®

Early diagnosis and treatment can significantly improve both the quality of life and the lifespan of children born with cystic fibrosis.[1,2] The proven diagnostic effectiveness of analyzing electrolyte concentration in sweat makes it vital to perform this test as soon as possible after birth.

ELITechGroup has long been the leading innovator in the laboratory diagnosis of cystic fibrosis with the Macroduct® Sweat Collector and its companion, the Sweat-Chek™ Sweat Conductivity Analyzer.

GROUND BREAKING INNOVATION BASED ON PROVEN TECHNOLOGY

The Nanoduct Neonatal Sweat Analysis System combines and miniaturizes the proven collection and analysis technologies of Macroduct and Sweat-Chek to accommodate the tiny limbs of newborn infants, and provides reliable laboratory diagnosis of CF as soon as a newborn's sweat glands are capable of producing sweat.

Innovative features of the Nanoduct System include the special electrode/sensor holders that are positioned on the patient's limb before iontophoresis. The holders make electrode placement simple and secure. They also guarantee that the sensor collecting surface is perfectly registered with the stimulated skin area and attachment pressure is optimal when the sensor is attached.

Nanoduct incorporates the classic method of inducing sweat by pilocarpine iontophoresis. The pilocarpine is carried into the dermis of the patient from improved Pilogel® Iontophoretic Discs by a controlled DC electric current supplied by the Nanoduct System.

This is followed by continuous-flow analysis of sweat electrolyte concentration using the unique conductivity sensor. Electrodes and the sensor are connected to the Nanoduct System via a single control cable.

The Nanoduct Neonatal Sweat Analysis System simplifies the sweat test and for the first time makes possible reliable laboratory diagnosis of CF in the first days of life.

CONTINUOUS-FLOW ANALYSIS OF ELECTROLYTE CONTENT

When the sensor is attached to the patient, the stimulated sweat emerging from the sweat glands is anaerobically directed into a microconductivity cell within the sensor. This provides a continuous display of the electrical conductivity in the freshly emerged sweat. Conductivity has been shown to be the equal of chloride in its ability to discriminate diagnostically between CF and non-CF subjects.[3,4,5,6,7,8,9]

SEPARATE COLLECTION PHASE IS ELIMINATED

Continuous-flow analysis while the sensor is on the limb, eliminates potential handling errors, saves laboratory time, and ensures accuracy by providing virtually infinite replications of the analysis on freshly excreted sweat. A further benefit: any inadvertent contamination of the sensor collecting surface will be dissipated before the final reading is displayed.

IMPROVED PILOGEL® DISCS

- Increased pilocarpine concentration
- Iontophoresis time reduced to only 2.5 minutes
- Buffered to prevent pH changes

Specifications

Nanoduct® Neonatal Sweat Analysis System Model 1030

Readout	128 x 64 LCD graphic display (non-backlit). Supports up to 8 lines of 18 characters or numerals, with multi-lingual support (English, French, German, and Spanish).
Sound	Alert and Alarm signals
Keyboard	ON, OFF, SELECT and ENTER keys
Electrode Connection	6-pin locking medical connector to mate with induction/conductivity cell cable
Serial Outputs	RS-232 (ASCII format) 9-pin D-sub male connector USB – device Type B receptacle
Electrical	Four AA Alkaline batteries (NEDA 15A, IEC LR6) Typical solid-state, over-current circuit protection 3.0 VDC lithium coin cell for the real-time clock
Sweat Induction Control	Current profile controlled for use with Pilogel Iontophoretic Discs with multiple fail-safe circuits to limit current. Nominal current is 0.5 (± 0.02) mA for 2.5 minutes (± 0.2 Sec.). Maximum fail-safe current limited to 5 mA.
Real-Time Clock	± 2 minutes per year (battery backed)
Operating Temperature	15 to 30 °C (59 to 86 °F)
Storage Temperature	0 to 60 °C (32 to 140 °F)
Instrument (H x W x D)	7.5 x 5 x 2 in (19.1 x 12.7 x 5.1 cm)
Weight	1.2 lb (0.5 kg)
Carrying Case	13.5 x 10.5 x 4 in (34.3 x 26.7 x 10.2 cm)
Sweat Analysis Conductivity Readout	mmol/L (equivalent NaCl)
Conductivity Range	3 to 200 mmol/L
Precision	CV ≤ 1% from 25 to 150 mmol/L (equivalent NaCl)
Initial Sweat Rate	0 to 50 g/m²/min
Calibration	Single-point automatic calibration at 80 mmol/L (equivalent NaCl) using the AC-081 Calibration Plate.

ALSO AVAILABLE:
Macroduct® Sweat Collection System
Sweat-Chek™ Sweat Analyzer

PRINTED **USA**
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Please contact your sales representative for product availability in your country.

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