



SMARTCHEM 140

DIRECT READ DISCRETE ANALYZER
FOR SIMPLE AND
AUTOMATED CHEMISTRIES



SMARTCHEM 140

FULLY AUTOMATED, DIRECT READ, DISCRETE ANALYZER TO MAXIMIZE PRODUCTIVITY FOR ROUTINE AND SPECIAL CHEMISTRIES, UP TO **140 TESTS/HOUR**



Based on widely used Smartchem 200 technology, the Smartchem 140 was designed for smaller laboratories in pursuit of efficiency and data quality.

The Smartchem 140 combines the latest technology in discrete analysis with an innovative, unique design that guarantees accurate and reproducible results.

The Smartchem 140 is the first discrete analyzer to utilize the Cuvette Quality Assurance System, performing an integrated QC check of each cuvette prior to use. In addition to automated analysis the Smartchem 140 offers automated system Quality Control.

The Smartchem 140 is also the first discrete analyzer to utilize a patented, dedicated sample prep module for the determination of NO_x by Cadmium reduction. Designed for multi-tasking and high throughput rates, the NO_x module also provides automated cadmium regeneration.

INTERACTIVE GRAPHICAL "DASHBOARD" PROVIDES A USER-FRIENDLY INTERFACE:

1. SELECT METHOD(S) AND TYPE IN SAMPLE IDS
2. FOLLOW THE DASHBOARD AND PLACE THE SAMPLES, REAGENTS, AND STOCK STANDARD IN THE AUTOSAMPLER
3. START ANALYSIS WITH A SIMPLE CLICK, ALL ANALYTICAL PROCEDURES FROM WORKING STANDARD DILUTION TO SAMPLE ANALYSIS, CUVETTE WASHING AND SYSTEM QC, ARE FULLY AUTOMATED AND DO NOT NEED ANY OPERATOR ACTION

THE ADVANTAGES OF DIRECT READ DISCRETE ANALYSIS

- Each reaction takes place in its own optical cuvette
- True sample blanking performed directly in each cuvette
- No flow cells
- No baseline stabilization
- No manual manifold changeover
- No excessive reagent consumption
- Automatic reagent blanking to evaluate reagent quality
- Pre and Post dilution of samples and calibration standards
- Automatic spike preparation
- Automatic method changeover
- Analyze samples in "batch" mode or "random" mode

DIRECT READ : MORE SIMPLICITY & SECURITY

The Smartchem 140 uses direct read photometry utilizing a true discrete, direct read measurement system and reusable, high purity synthetic optical cuvette system eliminating compromised sample measurement.

SMARTWASH : ELIMINATE CARRYOVER DURING SAMPLING

- Level sensor makes probe washing easy, with a standard 2mm immersion depth
- Potential contaminants go the way they need to flow – out of the sample probe!
- Three stage process: clean the inside of the probe, clean the washing well, then clean the outside of the probe
- Optical integrity of each cuvette quantitatively verified before each use
- Provides an infinite number of reaction vessels for analysis
- Economical & environmentally friendly : long lasting cuvettes, minimize hazardous waste and solid wastes

SAMPLE LOADING

- 4 universal, separate racks for continuous loading of samples, calibrators and controls
- Up to 140 tests/hour

Washing station Smartwash



Micro pipettor-dilutor



Cadmium module for Nitrate analysis



Long-life cuvettes with integrated Cuvette Quality Assurance System

FILTER WHEEL

- 12 optical filters (9 on board), ranging from 340nm to 880 nm
- Others filters optionally available

COMPUTER CONTROLLED MICRO PIPETTOR

- Accurate and precise dispensing of all liquids
- Probe cleaned after every liquid contact - prevents cross contamination and carryover
- Microliter reagent and sample consumption
- Liquid level sensor provides warnings for low reagent and sample levels

NITRATE/NITRITE MODULE

- Automated cadmium coil regeneration for Nitrate & Nitrite analysis, complies with US EPA Method # 353.2
- Patented design

PHOTOMETER

- High resolution, dual beam digital detector
- Expanded absorbance range to 2.500 ABS
- 5 detection modes: endpoint, fixed time, differential, bichromatic, and kinetic

USER FRIENDLY SMARTSTART SOFTWARE



The Smartchem 140 operating software runs under Windows 7 to 10. Its bright graphical user interface simplifies routine work and offers the operator a concise guide through the operating functions.

NEW SOFTWARE MAIN FEATURES

- Automatic start-up
- Automatic shutdown
- Handheld barcode reader for reagents & samples
- Addition of new sample or method to a sample during the run
- Accurate estimation of completion of analysis
- Calibration points recalculation
- Last accepted calibration overlay
- Pre-dilution
- Standard curves
- Computer controlled micro pipettor
- EPA NELAC compliant
- Real-time presentation of sample and reagent status

TECHNICAL SPECIFICATIONS

DESCRIPTION	Fully automated, direct read, bench top, Discrete analyzer	
ASSAY TYPE	End Point, Kinetic, Differential, Bi chromatic assays, 2 fixed times	
ON-BOARD REAGENTS	- 24 multi-use positions (reagents, diluents, spike solutions and QC samples) - 12 positions for stock calibration standards	
SAMPLES LOADING	4 racks for continuous loading of samples (64 positions)	
THROUGHPUT	Up to 140 tests/hour	
READING SYSTEM	Direct photometry	
MINIMUM REACTION VOLUME	300 µl	
OPTICS SYSTEM	Photometer	multi - wavelenght optics, double beam
	Wavelength	12 narrow band interferential filters (9 on board)
	Source	halogen lamp 6V/10W
	Optical Path	6 mm
	Linear range	0.001 - 2.500 Abs
	Resolution	0.0001 Abs
SAMPLING SYSTEM	One mechanic arm provides all sampling operation with : - Capacitive liquid level sensing - Reagent pre-warming at 37°C - Automatic probe washing - Sample Volume range : 3.0 - 300 µl (1µl incr.) - Reagent Volume : 3.0 - 300 µl (1µl incr.) - Sample pre-dilution	
DILUTOR	Automatic dilution in pre and post-dilution	
REACTION PLATE	Circular 120 semi-disposable cuvettes tray: - Automatic cuvette washing - Continuous monitoring of cuvette quality - Incubation temperature: 37°C	
DIMENSIONS	76 x 56 x 59 cm (Height x Depth x Width)	
WEIGHT	43 Kg	
OPTIONAL ACCESSORIES	- Handheld barcode reader - Nitrate module	
READY-TO-USE REAGENTS	Selection Aqua (Ready-to-use reagents for Water analysis) Alkalinity (OM) Alkalinity (BPB) Ammonia Chromium VI Chlorides Fluoride Hardness Nitrate Nitrite Phosphates Silicate Sulfates	Selection Oeno (Ready-to-use reagents for Wine analysis) Acetic acid Citric acid Gluconic acid Lactic acid Malic acid Tartric acid Alpha Amino Nitrogen Ammonia Anthocyanin Arginine Calcium Catechin
	Copper Free SO2 Fructose+glucose Glucose Glycerol Iron Potassium Polyphenols Sucrose Total Acidity Total SO2 Urea	



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