



# TECHNICAL SPECIFICATIONS

DESCRIPTION	Fully automated, direct read, bench top, Discrete analyzer	
ASSAY TYPE	End Point, Kinetic, Differential, Bi chromatic assays	
ON-BOARD REAGENTS	2 racks provided to contain up to 16 reagents as follow: - 1 rack for 10 reagent position - 1 rack for 6 reagent positions and 10 stock standards - 2 dedicated positions for diluents and other (spike solutions, QC samples...)	
SAMPLES LOADING	5 racks for continuous loading of samples (126 positions)	
URGENT SAMPLE ANALYSIS	Allowed at any time	
THROUGHPUT	Up to 200 tests/hour	
READING SYSTEM	Direct photometry	
MINIMUM REACTION VOLUME	300 µl	
OPTICS SYSTEM	<b>Photometer</b>	multi - wavelength optics, double beam
	<b>Wavelength</b>	12 narrow band interferential filters (9 on board)
	<b>Source</b>	halogen lamp 6V/10W
	<b>Optical Path</b>	10 mm
	<b>Linear range</b>	0.001 - 2.500 Abs
	<b>Resolution</b>	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 (1 µl incr.) - Reagent Volume : 3.0 - 300 µl (1 µl incr.) - Sample pre-dilution - Sample rerun with or without dilution	
DILUTOR	Automatic dilution in pre and post-dilution	
REACTION PLATE	Circular 60 semi-disposable cuvettes tray: - Automatic cuvette washing - Continuous monitoring of cuvette quality - Incubation temperature: 37°C	
DIMENSIONS	42 x 65 x 100 cm (H x W x L)	
WEIGHT	65 Kg	
OPTIONAL ACCESSORIES	- Bar code reader - ISE detector	- Nitrate module - Peltier chiller for reagent module
COMPLEMENTARY PRODUCTS	Digestion system: Easy digest    Distillation system: Easy Dist    Ready to use reagents	
		



## SMARTCHEM 200

STATE-OF-THE-ART DIRECT READ  
DISCRETE ANALYZER FOR  
AUTOMATED CHEMISTRIES



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# SMARTCHEM 200

FULLY AUTOMATED, DIRECT READ, DISCRETE ANALYZER TO MAXIMIZE PRODUCTIVITY FOR ROUTINE AND SPECIAL CHEMISTRIES, UP TO **200 TESTS/HOUR**



The Smartchem 200 combines the latest technology in discrete analysis with an innovative, unique design that guarantees accurate and reproducible results.

The Smartchem 200 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 200 offers automated system Quality Control.

The Smartchem 200 is also the first discrete analyzer to utilize a patented, dedicated sample prep module for the determination of NO<sub>x</sub> by Cadmium reduction. Designed for multi-tasking and high throughput rates, the NO<sub>x</sub> module also provides automated cadmium regeneration.

Now, the instrument provides also a pH, Conductivity and Redox module.

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 200 utilizes 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

- 5 universal, separate racks for continuous loading of samples, calibrators and controls
- Up to 200 tests/hour including ISE

Micro pipettor-dilutor

Washing station Smartwash

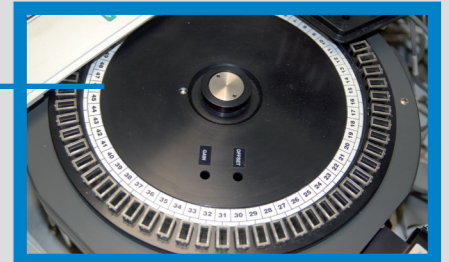
Cadmium module for Nitrate analysis and/or



ISE module for pH, conductivity and redox analysis



On-board reagents



Long-life cuvettes with integrated Cuvette Quality Assurance System

## FILTER WHEEL

- 12 optical filters (9 on board), plus 1 dark filter, 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 OR ISE MODULE

- Automated cadmium coil regeneration for Nitrate & Nitrite analysis, complies with US EPA Method # 353.2 and SM 4500-NO<sub>3</sub>-F
- ISE (Ion Selective Electrodes) module for pH, conductivity and redox analysis
- You can choose between each module or both

## 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 200 operating software runs under Windows XP, Windows Vista or Windows 7. 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
- Barcode for reagents
- Barcode for samples
- Addition of new sample or method to a sample during the run
- Reanalyse key
- Accurate estimation of completion of analysis
- Calibration points recalculation
- Last accepted calibration overlay
- Pre-dilution
- Standard curves
- Ready to read 2D barcoding in reagents kits
- Computer controlled micro pipettor
- NELAC - EPA compliant
- Real-time presentation of sample and reagent status
- Dynamic monitoring of test execution