SPHERA 202: Built to last

Physical characteristics

SIZE / WEIGHT	Height: 49 cm (19.3 in) Weight: 38 kg (83.8 lbs) Depth: 60 cm (23.6 in) Width: 62 cm (24.4 in)
POWER SUPPLY	240 / 100 Vac, 50 / 60 Hrz, single phase with ground Independent on-off switch for refrigerated reagent plate Fuse compartment / fuses: 2.5 Amp @ 230 Vac, 4 Amp @ 115 Vac Power consumption: less than 200 VA (external PC excluded) Ground resistance: less than 0.1 Ohm Leakage current: less than 2.5 mA
SAMPLING ARM	1 sampling needle,110 mm needle stroke Capacitive liquid level detector Needle shock sensor
DILUTER SYRINGE	Long life plunger Syringe capacity, 368 µL Syringe resolution, 0.14 µL
HYDRAULIC SYSTEM	8 self-priming peristaltic pumps (life 1000 hrs) with replaceable neoprene cassette (life 500 hrs) 2 vacuum pumps Pinch valve Manifold Containers*: Water, 20L; Cleaning solution, 2L; Waste, 20L * equipped with level sensor and safety connections
WASH STATION	Needles: 6 dispensing, 6 aspiration, 1 cleaning (8 step washing sequence for each cuvette)
REAGENTS TRAY	Removable rack 30 bottles, 50 mL or 24 ml (up to 1500 ml total)
SAMPLES TRAY	(Sphera standard) Removable tray, 60 numbered positions, tubes of 12 - 13 mm, 5 - 7 mL / cups of 0.5-1.5 mL (cups require a metal adapter for level detection) (Optional) Removable tray, 20 + 20 numbered positions, 20 tubes of 12 - 16 mm / 20 cups (3,5 mL type)
CUVETTE ROTOR REACTION CELLS	80 washable BIONEX® cuvettes which allow up to 30 000 tests per rotor Optical path 6 mm, 210 - 350 µL reaction volume 100W heating resistance, temperature sensor, safety thermostat
OPTICAL GROUP	1 halogen lamp (6 V, 10 W) with extended UV emission 2 focusing lenses, optical glass 10-position filter disk: 8 positions provided with interference filters of 340, 405, 505, 546, 578, 600, 650, 700 nm wavelengths, 1 free position and 1 solid position for dark reading Direct reading reaction cuvettes, 6mm optical path ±2 nm on peak wavelength, band pass of ±10 nm
PHOTOAMPLIFIER	Photoelectric detector Signal amplifier Response range, 340 nm to 900 nm Photometric range, 0 to 3 Abs Linearity, ±0.5% from 0.1 to 1.5 Abs Precision: 1% CV or 1 mAbs min. (0.1 to 1.5 Abs) Stability: daily reader offset, less than 1% drift per day
CONTROL	Real-time multitasking microprocessor based control Easy access to the electronics
EXTERNAL COMPUTER	(Minimum requirements for Software hi v.1.0) CPU: Intel i3 or superior RAM: 4GB I/O: USB 2.0 port Display: minimum resolution 1280x768 OS: Microsoft Windows® 7,8, 8.1, 10 Framework: .NET framework 4.6

Operation features

PIPETTING	Volume: sample, 2 - 300 µl; reagent, 5-350 µL Precision: 1.5 CV% at 2 µl; 1 CV% at 4 µL Mixing by sample needle upon dispensation
REACTION	Reaction volume, 210 - 350 µL
SAMPLE DILUTION	In-needle dilution if allowed by method's sample volumes Automatic pre-dilution in a reaction cuvette, up to 1:100
TEMPERATURE CONTROL	Reagent refrigeration, circa 12 °C below room temperature Reaction cells, heating unit can be set from room temperature up to 42 °C ±0.2 °C (108 °F ±0.5 °F)
TYPES OF TESTS	Endpoint, Bichromatic endpoint, Differential endpoint, Differential endpoint sample blank, Fixed Time, Kinetic, Kinetic bichromatic
TEST RUNS	Random / Urgent
MEASUREMENT RATES	125 tests/hour for double reagent run 200 tests/hour in single reagent mode Maximum incubation + reading time: 638 seconds Typical precision, endpoint 2.0 CV% / kinetic 2.0 CV% Carry-over, lower that 15 parts per million
START-UP	The start-up procedure is run daily: self-test, reader offset of optics, wash and check of all cuvettes
CALIBRATION	Reagent blank subtraction, 1 to 8 standards per test method Linear: factor, linear, linear regression Non linear (5 interpolation types): cubic-spline, poly-linear, multi-parameter, logit-log four parameters and five parameters Free standard / control positions (5 mL tubes or 1 mL cups) Results can be recalculated when changing factor or calibration curve
MAINTENANCE	Procedures programmed by component life counters
PRINTING REPORTS	Single test, complete sample, work sheet, method and QCs Automatic sample reports upon test completion if requested
NEEDLE WASHING	Sampling needle washed internally and externally with system solution after every operation

Connections

POWER	Standard VDE removable power cord
EXTERNAL PC	USB port
HOST/ LIS	Ethernet LAN (samples, work list, results) Standard ASTM ASCII protocol

Database

WORKLIST/ SAMPLES	For each worklist: unlimited number of samples, unlimited number of tests, up to 99 sheets of tests per worklist. Sample-patient ID codes Tests archive with powerful search tools Patient management
TEST METHODS	Unlimited number of methods in PC memory 60 active methods
QUALITY CONTROL	Three-level controls per test, one month monitoring Reagent/calibrator/control lot monitoring, Exclusion of failing results from graphic and statistics
ERROR LOG	Automatically stored at run-time, can be viewed or printed Powerful on-line monitoring

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