In vitro blood gas analyzers

New analyzers, connectivity, tests, and software features

On pages 64–72 is this year's look at the blood gas analyzers on the market, with two profiled for the first time.

Cleared in April by the FDA is Nova's newest—the Stat Profile Prime, which features Zero maintenance cartridges and MicroSensor technology. The Zero maintenance cartridge technology consists of individual cartridges for biosensors, calibrators, and liquid QC. The design optimizes the life of each cartridge, improves analyzer uptime, and eliminates the waste, downtime, and higher costs associated with older systems, says Rick Rollins, Nova marketing specialist. Stat Profile Prime analyzers deliver a 10-test profile—pH, PCO_2, PO_2, Na, K, iCa, Cl, Hct, glucose, and lactate—in 60 seconds.

From Opti Medical Systems is its newest portable blood gas analyzer, the Opti CCA-TS2. It features a multilevel standard reference cassette that can run three levels of electronic controls at once. The analyzer measures pH, PCO_2, PO_2, Na, K, iCa, Cl, glucose, BUN/urea, lactate, tHb, and SO_2 and has a standard POCT-1 interface for bi-directional communication.

New from Radiometer is wireless connectivity on its ABL90 Flex point-of-care analyzer. The acute care analyzer supports full connectivity without wires or cables; can be placed near the patient in the close quarters of an operating room, emergency department, or intensive care or step-down unit; and can be carried or moved on an optional rolling stand. Fully operational on battery, the analyzer supports real-time uploads of patient data while being transported between various clinical departments in the hospital. Common encryption protocols ensure data security on the wireless network.

Over the next year, Alere expects to add BUN and a measured TCO_2 test to its Epoc Blood Analysis System, which already has 11 analytes on one SmartCard with bar coding on the card and room temperature storage.

On the Instrumentation Laboratory Gem Premier 4000, the most recent menu addition is a point-of-care test for measuring total bilirubin in neonates. In the next 12 months IL says it will introduce a new system and the next version of its GemWeb Plus.

Roche's Cobas bge link data-management software has new features that make it possible for users to set their own validation rules. Roche expects to introduce within a year the next version of Cobas bge link with new reporting features that will provide greater flexibility and more patient information on reports.

The companies in this year's guide have their eyes on greater efficiency, speed, and quality at the point of care. "Labs are expected to do more with less staff, contain testing costs, and comply with increasing regulatory requirements," says Heidi Egensperger, product manager of compact instruments and samplers at Radiometer.

Companies supplied the information listed on this and the following pages. Readers interested in a system should confirm it has the stated features and capabilities.

–Kristen Eberhard, associate editor

Part 1 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Abbott Point of Care** **Joe Freels** joe.freels@apoc.abbott.com **400 College Rd. East** **Princeton, NJ 08540** **800-827-7828** www.abbottpointofcare.com	**Alere** **Martin Berner** martin.berner@alere.com **30 South Keller Rd., Suite 100** **Orlando, FL 32810** **888-893-6225** www.alere.com
Name of device/First year sold/Number of analyzers sold in 2013	i-STAT System/1992/—	epoc Blood Analysis System/2008/—
Number of devices sold in U.S./Outside U.S./List price	30,000+/20,000+/$13,924.05	—/—/$7,500
Dimensions (H x W x D)/Weight	9.25 × 3 × 2.85 inches/22.4 ounces	3 × 3.4 × 8.5 inches/~1.5 pounds
Analytes measured on device	pH, pCO2, pO2, Hct, Na, K, Cl, iCa, lactate, glucose, creatinine, BUN, TCO2, cTnI, CK-MB, BNP, ACT, PT/INR	pH, pCO2, pO2, Na+, K+, Ca++, glucose, Hct, lactate, Crea, Cl-
Parameters calculated on device	Hb, HcT, O2SAT, BE, TCO2, HCO3	cHCO3, cTCO2, BE(ecf), BE(b), cSO2, cHgb, eGFR, eGFR-a, AGap, AGapK
Barometric pressure	measured	recorded
Analytical method(s) or technologies employed	electrochemical for all analytes	pH, iCa, pCO2, Na, K: potentiometry; pO2, lactate, glucose: amperometry; Hct: conductometric; Hb: calculated
Device is part of a series of related models	no	no
Device warranty/Loaner devices provided	1-year replacement/—	1 year, extended warranty available/—
Average life expectancy of device	8 years	—
Open or closed system/External gas tanks required	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing	point-of-care testing
Point of care:		
Disposable prepackaged system used for analysis	reagent, electrode (single use)	reagent, electrode (single use)
No. of disposable reagent system units in standard package	25	50
No. of samples analyzed per one disposable reagent, electrode system	1	1
Reagent unit storage requirements	refrigerate: 2-month shelf life for blood gas cartridges, 2-week shelf life for all others	room temperature
Shelf life of disposable units	up to 6 months	up to 6 months
Laboratory:		
No. of different disposable reagents required to maintain device	—	—
Max. No. of analyte reagents that can reside in device at once	—	—
Shelf life of components	—	—
Cost per test/Reagent cost per test	—	—
Calibrations required	1 point (automatic)	1 point (automatic)
Calibration frequency	every test	every test
Internal QC program recommended	electronic QC, automated internal wet QC	—
QC features/Capabilities of QC features	comparable plot/monthly cumulative reports (available with external system)	—
Remote control of device from laboratory	yes	yes
System can use LOINC to transmit results to LIS	no	yes
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous
Acceptable anticoagulants/Sampling technique	heparin/injection, capillary transfer, and fill	heparin/injection, capillary transfer, and fill
Sample size for complete panel of analyte results	96 µL blood gas, 65 µL electrolytes	~92 mL
Sample size differs with number of analytes selected	no	no
Time from sample introduction to result availability	~2 minutes	~35 seconds
Max. No. of patient samples per hour/Max. No. measured results per hour	20 per unit/160	—
Optimal throughput when analyzer calibrated, awaiting specimens	—	—
Calibration can be interrupted to perform stat sample	—	no
Known interferences	—	—
Sampler has self-wiping probe	—	no
Time required for maintenance by lab personnel	—	—
Service center performs diagnostics through modem	yes	no
Method of analyst ID in system	keypad entry/bar-code scanner (customizable)	—
Instrument response for:		
• hardware failure/software failure	code number error message/code number error message	error code, rejection of card/error code, rejection of card
• QC failure	code number error message	failure noted on final report
• calibration failure	code number error message	card rejected
For what bar-code scanning is provided	operator and patient IDs, reagent lot number	operator and patient IDs, reagent lot number, all open fields
Built-in printer/Data port	no/—	no/—
Information listed on hard copy report	device-unique identifier, operator and patient IDs, results, QC results, QC identifier	all
Analyzer connections	LIS/HIS, via data-management system	LIS/HIS, via data-management system
Interface standards supported	ASTM 1394 and 1238, HL7	HL7
How analyzer connects to external system to upload patient and QC results	hospital Ethernet or wireless network	real-time wireless (RF)
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier, others	device-unique identifier, operator and patient IDs, results, QC identifier, others
Hardware and software for data-management system	PrecisionWeb, Central Data Station	software only
No. of different management reports system produces	35+	customizable
Contents downloaded from data-management system to analyzer	valid operator IDs, device behavior customizations	valid operator IDs, others
System connected (live installations) to which LISs, HISs	major LIS vendors	most
Use a third-party interfacing tool, engine for LIS, HIS interfaces	yes, Sybase Interface Manager	yes, Mirth
Distinguishing features (supplied by company)	handheld, portable, single-use test cartridge menu; broad test menu; laboratory-accurate results at the bedside; integrated 802.11b or g bidirectional data transmission to data manager	room-temperature card storage (up to six months); bar-coded test cards for quality and inventory management; fully wireless data transfer to data manager, real time (no need to dock for download)

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 2 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Instrumentation Laboratory** **Customer Service** customerservice@ilww.com **180 Hartwell Rd., Bedford, MA 01730** **800-955-9525** www.ilus.com	**Instrumentation Laboratory** **Customer Service** customerservice@ilww.com **180 Hartwell Rd., Bedford, MA 01730** **800-955-9525** www.ilus.com	**Instrumentation Laboratory** **Customer Service** customerservice@ilww.com **180 Hartwell Rd., Bedford, MA 01730** **800-955-9525** www.ilus.com
Name of device/First year sold/Number of analyzers sold in 2013	GEM Premier 3000/2000/1,700	GEM Premier 3500/2009/—	GEM Premier 4000/2006/—
Number of devices sold in U.S./Outside U.S./List price	>3,000/>9,000/$39,995	>2,000 worldwide/$45,000	>4,300 worldwide/$50,000
Dimensions (H x W x D)/Weight	17 × 12 × 12 inches/29.5 pounds	17.5 × 13 × 11.8 inches/31.2 pounds	18 × 12 × 15 inches/44 pounds
Analytes measured on device	pH, pO2, pCO2, Hct, Na, K, iCa, glucose, lactate	pH, pO2, pCO2, Hct, Na, K, iCa, glucose, lactate	pH, pCO2, pO2, Hct, Na, K, Cl, iCa, lactate, glucose, tHb(c), O2Hb, COHb, MetHb, HHb, tBili
Parameters calculated on device	A-aDO2, pAO2, paO2/pAO2, RI, O2cap*, O2Ct*, CaO2*, CvO2*, CcO2*, a-vDO2*, Qsp/Qt, P50, HCO3-, BEb, BEcecf, tCO2c, SO2c, tHbc, Ca++(7.4)	A-aDO2, pAO2, paO2/pAO2, RI, O2cap*, O2Ct*, CaO2*, CvO2*, CcO2*, a-vDO2*, Qsp/Qt, P50, HCO3-, BEb, BEcecf, tCO2c, SO2c, tHbc, Ca++(7.4)	TCO2, BEecf (in vivo), BE(B) (in vivo), tHb(c), Ca++ (7.4), anion gap, P/F ratio, pAO2, CaO2, CvO2, P50, O2ct, O2cap, sO2, sO2(c), HCO3-std, HCO3-(c), A-aDO2, paO2/pAO2, RI, CcO2, a-VDO2, Qsp/Qt(est), Qsp/Qt, Hct(c), temp corrections
Barometric pressure	—	—	—
Analytical method(s) or technologies employed	pH, pCO2: potentiometry; pO2, glucose, lactate: amperometry; Hct: conductivity; Na, K, iCa: potentiometric ion-selective electrode	pH, pCO2: potentiometry; pO2, glucose, lactate: amperometry; Hct: conductivity; Na, K, iCa: potentiometric ion-selective electrode	pH, pCO2: potentiometry; pO2, glucose, lactate: amperometry; Hct: conductivity; Hb, O2Hb, COHb, MetHb, HHb, tBili: spectrophotometric; Na, Cl, iCa, K: potentiometric ion-selective electrode
Device is part of a series of related models	yes	yes	yes
Device warranty/Loaner devices provided	5 years/yes	5 years/yes	5 years/yes
Average life expectancy of device	7–10 years	7–10 years	7–10 years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory
Point of care:			
Disposable prepackaged system used for analysis	multiuse cartridge	multiuse cartridge	multiuse cartridge
No. of disposable reagent system units in standard package	1	1	1
No. of samples analyzed per one disposable reagent, electrode system	35-, 75-, 150-, 300-, 450-, and 600-test cartridge	75-, 150-, 300-, 450-, and 600-test cartridge	cartidges available: 75, 150, 300, 450, 600
Reagent unit storage requirements	room temperature	room temperature	room temperature
Shelf life of disposable units	6 months	6 months	6 months
Laboratory:			
No. of different disposable reagents required to maintain device	1	1	1
Max. No. of analyte reagents that can reside in device at once	1 multiuse cartridge	1 multiuse cartridge	1 multiuse cartridge
Shelf life of components	6 months (cartridge)	6 months (cartridge)	6 months (cartridge)
Cost per test/Reagent cost per test	varies with size and menu/—	varies with size and menu/—	varies with size and menu/—
Calibrations required	automated continuous with Intelligent Quality Management (iQM)	automated continuous with Intelligent Quality Management (iQM)	automated continuous with Intelligent Quality Management (iQM)
Calibration frequency	automated continuous with iQM	automated continuous with iQM	automated continuous with iQM
Internal QC program recommended	internal, automated, continuous quality management included	internal, automated, continuous quality management included	internal, automated, continuous quality management included
QC features/Capabilities of QC features	onboard iQM/automated on-demand monthly reports include number of measurements, mean, maximum, and minimum delta values	onboard iQM/monthly report includes number of measurements, mean, maximum, and minimum delta values	onboard iQM/monthly report includes number of measurements, mean, maximum, and minimum delta values
Remote control of device from laboratory	no	no	yes (with GEMweb Plus)
System can use LOINC to transmit results to LIS	yes	yes	yes
Specimen types suitable for device	whole blood, arterial, venous, mixed venous, or capillary	whole blood, arterial, venous, mixed venous, or capillary	whole blood, capillary, mixed venous, arterial, venous
Acceptable anticoagulants/Sampling technique	heparin/aspiration	heparin/aspiration	heparin/aspiration
Sample size for complete panel of analyte results	135 µL	135 µL	150 µL, 100 µL (CO-ox and tBili), 65 µL micro mode
Sample size differs with number of analytes selected	no	no	yes
Time from sample introduction to result availability	85 seconds	85 seconds	70 seconds for electrochemical; 25 additional seconds for CO-ox
Maximum No. of patient samples per hour/Maximum No. measured results per hour	20/180	20/180	20/320
Optimal throughput when analyzer calibrated, awaiting specimens	20 samples per hour	20 samples per hour	20 samples per hour
Calibration can be interrupted to perform stat sample	yes	yes	yes
Known interferences	interferences detected by iQM and operator notified	interferences detected by iQM and operator notified	interferences detected by iQM and operator notified
Sampler has self-wiping probe	yes	yes	yes
Time required for maintenance by lab personnel	none (disposable cartridge)	none (disposable cartridge)	none (disposable cartridge)
Service center performs diagnostics through modem	no	no	no (VPN data transfer can be configured)
Method of analyst ID in system	manual or bar-code entry of ID and password (customizable)	manual or bar-code entry of ID and password	wireless bar-code gun or manual virtual keyboard entry
Instrument response for:			
• hardware failure/software failure	operator warning, sampling lockout if required/ operator warning, sampling lockout if required	operator warning, sampling lockout if necessary/ operator warning, sampling lockout if necessary	operator warning, sampling lockout if necessary/ operator warning, sampling lockout if necessary
• QC failure	iQM will automatically detect and perform corrective actions or disable analyte if necessary	iQM will automatically detect and perform corrective actions or disable analyte if necessary	iQM will automatically detect and perform corrective actions or disable analyte if necessary
• calibration failure	iQM will automatically detect and perform corrective actions or disable analyte if necessary	iQM will automatically detect and perform corrective actions or disable analyte if necessary	iQM will automatically detect and perform corrective actions or disable analyte if necessary
For what bar-code scanning is provided	operator and patient IDs, CVP, ContrIL values	operator and patient IDs, CVP, ContrIL values	operator and patient IDs, cartridge lot number, expiration date
Built-in printer/Data port	yes/3 RS-232, 1 parallel, bar-code reader port, Ethernet port	yes/4 USB, 3 RS-232, 1 parallel, bar-code reader port, Ethernet	yes/4 RS-232, 1 parallel port, 1 Ethernet port, 4 USB ports
Information listed on hard copy report	patient demographics, hospital name and address, results	patient demographics, hospital name and address, results	patient demographics, hospital information, results, result flags and legend, reference and critical ranges (optional), comments, notification information
Analyzer connections	GEMweb, GEMweb Plus, Impact for Critical Care	GEMweb, GEMweb Plus, Impact for Critical Care	LIS/HIS via direct interface or GEMweb Plus Custom Connectivity; vendor-neutral or Web-based systems
Interface standards supported	ASTM protocol	ASTM and HL7 protocols	ASTM 1394, HL7
How analyzer connects to external system to upload patient and QC results	direct serial, Ethernet, modem dial-in	direct serial, Ethernet, modem dial-in	direct serial, hospital network, real-time wireless
Information included in transmission from analyzer to external system	device identifier, operator and patient IDs, results, QC identifier and results	device identifier, operator and patient IDs, results, QC identifier and results	device identifier, operator and patient IDs, results, QC identifier
Hardware and software for data-management system	Impact for Critical Care	GEMweb, GEMweb Plus, Impact for Critical Care	GEMweb Plus
No. of different management reports system produces	customizable	customizable	4
Contents downloaded from data-management system to analyzer	patient ID, demographics	patient ID, demographics	most configuration information, including valid operator IDs, QC lots, and ranges
System connected (live installations) to which LISs, HISs	major HIS/LIS vendors	major HIS/LIS vendors	major HIS/LIS vendors
Use a third-party interfacing tool, engine for LIS, HIS interfaces	MAS RALS, Telcor	MAS RALS, Telcor	MAS RALS, Telcor
Distinguishing features (supplied by company)	iQM detects, corrects, and documents system, sensor, or sample errors, reducing error detection time to minutes; maintenance-free single, multiuse cartridge available in customized configurations for use in any hospital location	iQM detects, corrects, and documents system, sensor, and sample errors, reducing error detection time to minutes; maintenance-free, single, multiuse cartridge available in customizable configurations for use in any hospital location; wireless communication to LIS or HIS	iQM detects, corrects, documents system, sensor, and sample errors, reducing error detection time to minutes; single, multiuse cartridge includes all testing components, is changed every 30 days, requires no refrigeration or maintenance; GEMweb Plus software allows access and control from any networked PC or GEM Premier 4000 analyzer; Plus Technology offers wireless communication to HIS/LIS, and remote service capabilities
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	**when interfaced with GEM OPL CO-Oximeter*	**when interfaced with GEM OPL CO-oximeter*	

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In vitro blood gas analyzers

Part 3 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**ITC** 8 Olsen Ave. Edison, NJ 08820 800-631-5945 www.itcmed.com	**Medica Corp.** Ray Morrill rmorrill@medicacorp.com 5 Oak Park Drive, Bedford, MA 01730 781-275-4892 www.medicacorp.com	**Medica Corp.** Ray Morrill rmorrill@medicacorp.com 5 Oak Park Drive, Bedford, MA 01730 781-275-4892 www.medicacorp.com
Name of device/First year sold/Number of analyzers sold in 2013	IRMA TRUpoint Blood Analysis System/1994/—	EasyStat/2002/—	EasyBloodGas/2000/—
Number of devices sold in U.S./Outside U.S./List price	>6,000 worldwide/—	—/>1,000/$12,500	—/>1,000/$10,750
Dimensions (H x W x D)/Weight	11.5 × 9.5 × 5 inches/5 pounds, 4 ounces	12.5 × 14.5 × 7 inches/16 pounds	12.5 × 14.5 × 7 inches/16 pounds
Analytes measured on device	pH, pCO2, pO2, Hct, Na, K, Cl, iCa, glucose, BUN, creatinine, lactate	pH, pCO2, pO2, Hct, Na, K, Cl, iCa	pH, pCO2, pO2
Parameters calculated on device	Hb, O2SAT, BEb, BEecf, TCO2, HCO3-, iCa(n), creatinine MDRD GFR	Hb, O2SAT, BE, TCO2, HCO3	O2SAT, BE, TCO2, HCO3
Barometric pressure	measured	recorded, measured	measured
Analytical method(s) or technologies employed	pH, pCO2, Na, Cl, iCa, K, BUN, creatinine, lactate (enzymatic): potentiometric; pO2, glucose (enzymatic): amperometric; Hct: conductometric	pH: ISE-potentiometry; iCa: ISE-potentiometry; pCO2: ISE-potentiometry; pO2: ISE-potentiometry; Hct: conductivity; Hb: calculated from Hct; Na: ISE-potentiometry; Cl: ISE-potentiometry; K: ISE-potentiometry	ph: ISE-potentiometry; pCO2: ISE-potentiometry; p02: ISE-amperometry
Device is part of a series of related models	yes	yes (expanded parameter menu; related to EasyBloodGas)	yes (basic model is first generation related to expanded model EasyStat)
Device warranty/Loaner devices provided	1 year/yes	1 year/yes	1 year/yes
Average life expectancy of device	7 years	7–10 years	7–10 years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing	laboratory	laboratory
Point of care:			
Disposable prepackaged system used for analysis	reagent, electrode (single use)	reagent, electrode	reagent, electrode
No. of disposable reagent system units in standard package	25	1	1
No. of samples analyzed per one disposable reagent, electrode system	1	based on testing volume per day	based on testing volume per day
Reagent unit storage requirements	room temperature; creatinine 2°–8°C	room temperature	room temperature
Shelf life of disposable units	up to 6 months	reagents: 12 months; electrodes: 12 months	reagents: 12 months; electrodes: 12 months
Laboratory:			
No. of different disposable reagents required to maintain device	—	1	1
Max. No. of analyte reagents that can reside in device at once	—	1	1
Shelf life of components	—	reagents: 12 months; electrodes: 12 months	reagents: 12 months; electrodes: 12 months
Cost per test/Reagent cost per test	—	<$0.13 at 20 samples per day/$0.06 at 20 samples per day	<$0.30 at 20 samples per day/$0.17 at 20 samples per day
Calibrations required	2 point (automatic)	1 and 2 point (manual and automatic)	1 and 2 point (manual and automatic)
Calibration frequency	automatic with each sample	1 point (with every sample analysis); 2 point (can be set for 2-, 4-, or 8-hour increments)	1 point (with every sample analysis); 2 point (can be set for 2-, 4-, or 8-hour increments)
Internal QC program recommended	automatic electronic QC per 8 hours	3 controls, 1 level per 8 hours, CLIA recommendations, Medica controls recommended	3 controls, 1 level per 8 hours, CLIA recommendations, Medica controls recommended
QC features/Capabilities of QC features	L-J plots/statistical calculations, monthly cumulative reports (IDMS)	L-J plots/statistical calculations, monthly cumulative reports	L-J plots/statistical calculations, monthly cumulative reports
Remote control of device from laboratory	yes	no	no
System can use LOINC to transmit results to LIS	no	no	no
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, venous	plasma, serum, whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous
Acceptable anticoagulants/Sampling technique	heparin, EDTA (glucose strip only)/injection	heparin/aspiration	heparin/aspiration
Sample size for complete panel of analyte results	125 µL capillary, 200 µL syringe	100 µL, 95 µL capillary	100 µL, 75 µL capillary
Sample size differs with number of analytes selected	no	no	no
Time from sample introduction to result availability	60–90 seconds, on average	<120 seconds (includes 1-point calibration)	<125 seconds (includes 1-point calibration)
Max. No. of patient samples per hour/Max. No. measured results per hour	25/175	30/210	28/84
Optimal throughput when analyzer calibrated, awaiting specimens	20 samples per hour	30 tests per hour	28 tests per hour
Calibration can be interrupted to perform stat sample	—	yes	yes
Known interferences	—	incorrect anticoagulant	incorrect anticoagulant
Sampler has self-wiping probe	no, not needed	yes	yes
Time required for maintenance by lab personnel	none	daily: 0.5 minutes; weekly: 3.5 minutes; monthly: 15 minutes	daily: 0.5 minutes; weekly: 3.5 minutes; monthly: 15 minutes
Service center performs diagnostics through modem	no	no	no
Method of analyst ID in system	LCD touchscreen, numeric (customizable)	manual or bar-code wand for ID entry (optional)	manual or bar-code wand for ID entry (optional)
Instrument response for:			
• hardware failure/software failure	EQC failure or screen prompt/screen prompt	operator warning, error messages/error messages, user ID: sampling lockout	operator warning, error messages/error messages, user ID: sampling lockout
• QC failure	if QC required, no access to patient testing mode	flagged results	flagged results
• calibration failure	test ends (no injection of sample allowed)	error messages, second attempt for 2-point calibration automatically	error messages, second attempt for 2-point calibration automatically
For what bar-code scanning is provided	operator and patient IDs, cartridge information, lot number, quality control ranges	operator identifier, patient identifier, QC control, reagent pack automatically read when reagent module installed	operator identifier, patient identifier, QC control, reagent pack automatically read when reagent module installed
Built-in printer/Data port	yes/RS-232, modem, Ethernet, LAN	yes/RS-232	yes/RS-232
Information listed on hard copy report	analyzer serial number, date, calibration successful, calibration code, lot number, patient ID and temperature, results, barometric pressure, SW version optional: user ID, reference ranges, O2 therapy, sample information	patient information, measured and calculated parameters, date, operator ID	patient information, measured and calculated parameters
Analyzer connections	data-management systems connect to LIS/HIS; directly to LIS/HIS (both options)	data-management system, which connects to LIS/HIS; directly to LIS/HIS	data-management system, which connects to LIS/HIS; directly to LIS/HIS
Interface standards supported	IRMA	Medica protocol	Medica protocol
How analyzer connects to external system to upload patient and QC results	hospital network, direct serial, LAN	direct serial	direct serial
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier, patient O2 therapy information	operator ID, patient ID, results	patient ID, results
Hardware and software for data-management system	connects to Alere (MAS RALS+ and LDS Aegis POC) and Telcor data-management systems	internal	internal
No. of different management reports system produces	19	QC, L-J charts, patient reports	QC, L-J charts, patient reports
Contents downloaded from data-management system to analyzer	all analyzer settings, software upgrades	—	—
System connected (live installations) to which LISs, HISs	major HIS/LIS vendors	—	—
Use a third-party interfacing tool, engine for LIS, HIS interfaces	yes	no	no
Distinguishing features (supplied by company)	self-contained and easy to use; contains onboard printer, interactive touchscreen, bar-code scanning, automatic electronic QC, and site-specific custom correlation reference ranges; complete data management from patient information to lot traceability; self-calibrating cartridges with Luer lockport, which forms a closed system and reduces biohazards	modular components; simple operation and maintenance; low operation cost; disposable, maintenance-free sensors; no gas tanks; easy inside and out	modular components; simple operation and maintenance; low operation cost; disposable, maintenance-free sensors; no gas tanks; easy inside and out

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 4 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Nova Biomedical** **Sales** info@novabiomedical.com **200 Prospect St., Waltham, MA 02454-9141** **800-458-5813** www.novabiomedical.com	**Nova Biomedical** **Sales** info@novabiomedical.com **200 Prospect St., Waltham, MA 02454-9141** **800-458-5813** www.novabiomedical.com	**Nova Biomedical** **Sales** info@novabiomedical.com **200 Prospect St., Waltham, MA 02454-9141** **800-458-5813** www.novabiomedical.com
Name of device/First year sold/Number of analyzers sold in 2013	Stat Profile Prime CCS Comprehensive/2014	Stat Profile pHOx Ultra/2011/—	Stat Profile pHOx/1998/—
Number of devices sold in U.S./Outside U.S./List price	—	—	—
Dimensions (H x W x D)/Weight	15.4 × 12.0 × 14.4 inches/17.9 pounds	17.2 × 22.3 × 18.7 inches/61 pounds	15 × 12 × 15 inches/18 pounds
Analytes measured on device	pH, PCO2, PO2, Hct, Na, K, Cl, iCa, lactate, glucose	pH, PCO2, PO2, Hct, Hb, Na, K, Cl, iCa, iMg, lactate, glucose, creatinine, BUN, SO2%, bilirubin, CO-oximetry	pH, PCO2, PO2, Hct, Hb, SO2%
Parameters calculated on device	Hb, 02SAT, BE, TCO2, HCO3, Be-efc, Be-b, SBC, 02Ct, O2Cap, A, AaDO2, a/A, RI, PO2/FIO2, anion gap, P50 measured	BE, TCO2, HCO3-	BE, TCO2, HCO3-
Barometric pressure	tracked	tracked	tracked
Analytical method(s) or technologies employed	—	pH, iCa, iMg, Na, Cl, and K: direct ISE; PCO2: Severinghaus; PO2: amperometry; Hct: conductivity; Hb, SO2%: optical–reflectance; lactate, glucose, and creatinine: enzyme/amperometric	pH: direct ISE; PCO2: Severinghaus; PO2: amperometry; Hct: conductivity; Hb and SO2%: optical–reflectance
Device is part of a series of related models	yes (has same menu minus glucose and lactate)	yes (pHOx analyzer series, pHOx Ultra without CO-ox)	yes
Device warranty/Loaner devices provided	1 year/yes	1 year/yes	1 year, travel and labor, repair, or replacement/yes
Average life expectancy of device	5–7 years	5–7 years	5–7 years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory
Point of care:			
Disposable prepackaged system used for analysis	reagent, electrode (single use, multiuse cartridge, MicroSensor card)	reagent	reagent
No. of disposable reagent system units in standard package	1	200–500	200–500
No. of samples analyzed per one disposable reagent, electrode system	—	—	—
Reagent unit storage requirements	—	—	room temperature
Shelf life of disposable units	reagents: 12 months at room temperature	reagents: 18 months at room temperature; electrodes: up to 18 months	reagents: 18 months at room temperature; electrodes: up to 18 months
Laboratory:			
No. of different disposable reagents required to maintain device	1	1	1
Max. No. of analyte reagents that can reside in device at once	1	20	1
Shelf life of components	reagents: 12 months; MicroSensor card: 12 months	reagents and electrodes: 18 months; membrane kits: 12–24 months	reagents and electrodes: 18 months; membrane kits: 12–24 months
Cost per test/Reagent cost per test	depends on volume	depends on volume/—	<$0.11 at 35 analyses per day/<$0.08 at 35 analyses per day
Calibrations required	1 and 2 point (automatic)	1 and 2 point (automatic)	1 and 2 point (automatic)
Calibration frequency	1 point: variable; 2 point: variable	1 point: 30 or 45 minutes or with every sample (user selectable); 2 point: 2, 3, 4, 5, or 6 hours (user defined)	1 point: 30 or 45 minutes or with every sample (user selectable); 2 point: 2, 4, or 6 hours (user defined)
Internal QC program recommended	minimum CLIA recommendations	minimum CLIA recommendations	minimum CLIA recommendations
QC features/Capabilities of QC features	L-J plots/statistical calculations, monthly cumulative reports, true liquid quality control	L-J plots/statistical calculations, monthly cumulative reports, true liquid quality control	L-J plots/statistical calculations, monthly cumulative report (onboard, more extensive reporting available with Nova Point-of-Care Manager)
Remote control of device from laboratory	no	yes	no
System can use LOINC to transmit results to LIS	yes	yes	no
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial
Acceptable anticoagulants/Sampling technique	heparin/aspiration and capillary	heparin/aspiration and capillary	heparin/aspiration and capillary
Sample size for complete panel of analyte results	100 µL	210 µL	70 µL
Sample size differs with number of analytes selected	yes, 50 µL for blood gasses only	yes, variety of micropanel options offered and can be customized from 60 to 210 µL	yes, standard 3-test blood gas micropanel sample required is 45 µL
Time from sample introduction to result availability	60 seconds	up to 134 seconds	45 seconds
Maximum No. of patient samples per hour/Maximum No. measured results per hour	45/450	26/520	300/300
Optimal throughput when analyzer calibrated, awaiting specimens	45 per hour	23 per hour	50 per hour
Calibration can be interrupted to perform stat sample	yes	yes	yes
Known interferences	—	none	—
Sampler has self-wiping probe	yes	yes	yes
Time required for maintenance by lab personnel	monthly: <5 minutes	weekly: <5 minutes; monthly: <10 minutes	weekly: <5 minutes; monthly: <10 minutes
Service center performs diagnostics through modem	no	yes	yes
Method of analyst ID in system	multilevel password with unique user ID number (customizable)	multilevel password with unique user ID number (customizable)	password with unique user ID number (optional)
Instrument response for:			
• hardware failure/software failure	self-diagnosis software informs and notifies operator/self-diagnosis software informs and notifies operator	self-diagnosis software informs and notifies operator, hotline and field support/self-diagnosis software informs and notifies operator, hotline and field support	self-diagnosis software informs and notifies operator, hotline and field support/self-diagnosis software informs and notifies operator, hotline and field support
• QC failure	options range from flagging to not reporting test to lockout for QC failure or exceeding scheduled QC interval	options range from flagging to not reporting test to lockout for QC failure or exceeding scheduled QC interval	options range from flagging to not reporting test to lockout for QC failure or exceeding scheduled QC interval
• calibration failure	any test that does not calibrate will not report results	any test that does not calibrate will not report results and instrument notifies operator of reason for failure	any test that does not calibrate will not report results and instrument notifies operator of reason for failure
For what bar-code scanning is provided	operator and patient identifiers, reagent information is automatically captured when installed	operator and patient identifiers	patient ID
Built-in printer/Data port	yes/RS-232, Ethernet	yes/RS-232, Ethernet, others	yes/multiple RS-232
Information listed on hard copy report	patient ID with accession numbers, entered settings, measures and calculates results	patient ID with accession numbers, entered settings, measures and calculates results	patient ID with accession number, entered settings, measures and calculates results
Analyzer connections	data-management system, which connects to LIS/HIS	data-management system or directly to LIS/HIS, or both	data-management system or directly to LIS/HIS, or both
Interface standards supported	ASTM 1394, HL7	ASTM 1394 and 1238, HL7, POCT-1A	ASTM E1381-91 and ASTM 1394-91 (HL7 available with external device)
How analyzer connects to external system to upload patient and QC results	hospital network	hospital network	direct serial: >500 hospitals institutions; hospital network: >100 institutions
Information included in transmission from analyzer to external system	device unique identifier, operator and patient IDs, results, QC identifier	device-unique identifier, operator and patient IDs, results, QC identifier	device-unique identifier, operator and patient IDs, results, QC identifier, accession number
Hardware and software for data-management system	—	full-featured onboard DMS capability, external DMS also available	Pentium with Microsoft Windows 2000, Nova Point-of-Care Manager
No. of different management reports system produces	>30	>30	>60
Contents downloaded from data-management system to analyzer	patient names, passwords	valid control values and operator IDs, patient demographics	patient name, passwords
System connected (live installations) to which LISs, HISs	most commercially available LIS/HIS	—	—
Use a third-party interfacing tool, engine for LIS, HIS interfaces	yes, most commercially available interfaces	yes	yes
Distinguishing features (supplied by company)	Zero Maintenance MicroSensor Cartridge technology uses proven Nova measurement technology in a miniaturized sensor card format; unique Clot Block flow path designed to eliminate downtime asso. with introduction of a clotted sample; individual cartridges for sensors, calibrators, and liquid QC optimizes the life of each element compared to a combined calibrator/sensor cartridge design	20-test whole blood critical care menu and proven platform of hybrid component cartridge-based biosensor technology; BUN, iMg available exclusively; analyzer networking at no extra cost; multiple pHOx Ultra analyzers can be networked together into a single, common database; a supervisor or authorized operator can access all patient results, QC results, and reports from all analyzers	onboard auto-cartridge QC; all-liquid calibration cartridge eliminates gas tanks; single reagent cartridge has all supplies for calibration and waste collection

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 5 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Nova Biomedical** **Sales** info@novabiomedical.com **200 Prospect St.** **Waltham, MA 02454-9141** **800-458-5813** www.novabiomedical.com	**Nova Biomedical** **Sales** info@novabiomedical.com **200 Prospect St.** **Waltham, MA 02454-9141** **800-458-5813** www.novabiomedical.com	**OPTI Medical Systems** **Dustin Moore** dustin.moore@optimedical.com **235 Hembree Park Drive** **Roswell, GA 30076** **800-490-6784** www.optimedical.com
Name of device/First year sold/Number of analyzers sold in 2013	Stat Profile pHOx Plus L/2001/—	Stat Profile pHOx Plus C/2003/—	OPTI CCA-TS2/2013/—
Number of devices sold in U.S./Outside U.S./List price	—	—	~50/~500/—
Dimensions (H x W x D)/Weight	15 × 12 × 15 inches/18 pounds	15 × 12 × 15 inches/18 pounds	5 × 14 × 9 inches/10 lbs with battery (4.3 kg) pack
Analytes measured on device	pH, PCO2, PO2, Hct, Hb, SO2%, Na, K, Cl or iCa, glucose, lactate	pH, PCO2, PO2, Hct, Hb, SO2%, Na, K, Cl, iCa, glucose	pH, pCO2, pO2, Hb, Na, K, Cl, iCa, lactate, glucose, BUN
Parameters calculated on device	BE, TCO2, HCO3-	BE, TCO2, HCO3-	Hct, BE, TCO2, HCO3
Barometric pressure	tracked	tracked	measured
Analytical method(s) or technologies employed	pH: direct ISE; PCO2: Severinghaus; PO2: amperometry; Hct: conductivity; Hb and SO2%: optical–reflectance; Na, K, Cl, iCa: direct ISE; glucose, lactate: enzyme/amperometric	pH: direct ISE; PCO2: Severinghaus; PO2: amperometry; Hct: conductivity; Hb and SO2%: optical–reflectance; Na, K, Cl, iCa: direct ISE; glucose: enzyme/amperometric	pH, iCa, pCO2, pO2, lactate, glucose, Hb, Na, BUN, Cl, K: optical fluorescence; Hct: calculated from measured Hb
Device is part of a series of related models	yes	yes	yes (latest in OPTI CCA line)
Device warranty/Loaner devices provided	1 year, travel and labor, repair or replacement/—	1 year, travel and labor, repair or replacement/—	1 year full coverage/yes
Average life expectancy of device	5–7 years	5–7 years	10+ years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory	point-of-care testing
Point of care:			
Disposable prepackaged system used for analysis	reagent	reagent	reagent, electrode (single use)
No. of disposable reagent system units in standard package	200–500	200–500	25
No. of samples analyzed per one disposable reagent, electrode system	—	—	1
Reagent unit storage requirements	room temperature	room temperature	room temperature for most types
Shelf life of disposable units	reagents: 18 months at room temperature; electrodes: up to 18 months	reagents: 18 months at room temperature; electrodes: up to 18 months	6–12 months depending on type
Laboratory:			
No. of different disposable reagents required to maintain device	1	1	—
Max. No. of analyte reagents that can reside in device at once	1	1	—
Shelf life of components	reagents and electrodes: 18 months; membrane kits: 12–24 months	reagents and electrodes: 18 months, membrane kits: 12–24 months	—
Cost per test/Reagent cost per test	<$0.11 at 35 analyses per day/<$0.08 at 35 analyses per day	<$0.11 at 35 analyses per day/<$0.08 at 35 analyses per day	—
Calibrations required	1 and 2 point (automatic)	1 and 2 point (automatic)	1 point (automatic)
Calibration frequency	1 point: 30 or 45 minutes or with every sample (user selectable); 2 point: 2, 4, or 6 hours (user defined)	1 point: 30 or 45 minutes or with every sample (user selectable); 2 point: 2, 4, or 6 hours (user defined)	1 point before every sample
Internal QC program recommended	minimum CLIA recommendations	minimum CLIA recommendations	configurable according to QC regulations
QC features/Capabilities of QC features	L-J plots/statistical calculations, monthly cumulative report (onboard, more extensive reporting available with Nova Point-of-Care Manager)	L-J plots/statistical calculations, monthly cumulative report (onboard, more extensive reporting available with Nova Point-of-Care Manager)	—/statistical calculations
Remote control of device from laboratory	no	no	yes
System can use LOINC to transmit results to LIS	no	no	no
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, serum plasma	whole blood, capillary, mixed venous, arterial, serum plasma	plasma, serum, whole blood, capillary, mixed venous, arterial, venous
Acceptable anticoagulants/Sampling technique	heparin/aspiration and capillary	heparin/aspiration and capillary	heparin/aspiration
Sample size for complete panel of analyte results	125 µL	125 µL	125 µL
Sample size differs with number of analytes selected	yes, standard 3-test micropanel required is 60 µL	yes, standard 3-test micropanel required is 60 µL	yes
Time from sample introduction to result availability	52 seconds	52 seconds	1 minute
Maximum No. of patient samples per hour/Maximum No. measured results per hour	50/500	50/500	25/200
Optimal throughput when analyzer calibrated, awaiting specimens	38 per hour	38 per hour	—
Calibration can be interrupted to perform stat sample	yes	yes	no
Known interferences	none	none	—
Sampler has self-wiping probe	yes	yes	no
Time required for maintenance by lab personnel	weekly: <5 minutes; monthly: <10 minutes	weekly: <5 minutes; monthly: <10 minutes	quarterly: 1 minute
Service center performs diagnostics through modem	yes	yes	no
Method of analyst ID in system	password with unique user ID number (optional)	password with unique user ID number (optional)	bar code, secure op ID and/or password (customizable)
Instrument response for:			
• hardware failure/software failure	self-diagnosis software informs and notifies operator/ self-diagnosis software informs and notifies operator	self-diagnosis software informs and notifies operator/ self-diagnosis software informs and notifies operator	self-diagnostic tests inform operator through screen message and sounds/screen message and sounds
• QC failure	options range from flagging to not reporting test to lock-out for QC failure or exceeding scheduled QC interval	options range from flagging to not reporting test to lock-out for QC failure or exceeding scheduled QC interval	screen message (QC lockout available)
• calibration failure	any test that does not calibrate will not report results and instrument notifies operator of reason for failure	any test that does not calibrate will not report results and instrument notifies operator of reason for failure	screen message and sounds prior to sample introduction
For what bar-code scanning is provided	patient ID	patient ID	operator and patient IDs, reagent lot number
Built-in printer/Data port	yes/multiple RS-232	yes/multiple RS-232	yes/parallel, Ethernet, other
Information listed on hard copy report	patient ID with accession number entered settings, measures and calculates results	patient ID with accession number entered settings, measures and calculates results	patient ID, demographics and results; entered settings, operator ID, calculated results, reference and critical ranges, messages
Analyzer connections	data-management system or directly to LIS/HIS, or both	data-management system or directly to LIS/HIS, or both	data-management system connects to LIS/HIS or directly to LIS/HIS
Interface standards supported	ASTM E1381-91 and ASTM 1394-91 (HL7 available with external device)	ASTM E1381-91 and ASTM 1394-91 (HL7 available with external device)	ASTM 1394, POCT1
How analyzer connects to external system to upload patient and QC results	direct serial: >500 hospitals institutions; hospital network: >100 institutions	direct serial: >500 hospitals institutions; hospital network: >100 institutions	direct serial, Ethernet hospital network
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier, accession number	device-unique identifier, operator and patient IDs, results, QC identifier, accession number	device-unique identifier, operator and patient IDs, results, QC identifier
Hardware and software for data-management system	Pentium with Microsoft Windows 2000, Nova Point-of-Care Manager	Pentium with Microsoft Windows 2000, Nova Point-of-Care Manager	—
No. of different management reports system produces	>60	>60	—
Contents downloaded from data-management system to analyzer	patient name, passwords	patient name, passwords	—
System connected (live installations) to which LISs, HISs	—	—	—
Use a third-party interfacing tool, engine for LIS, HIS interfaces	yes	yes	—
Distinguishing features (supplied by company)	onboard auto-cartridge QC; all-liquid calibration cartridge eliminates gas tanks; single reagent cartridge has all supplies for calibration and waste collection	onboard auto-cartridge QC; all-liquid calibration cartridge eliminates gas tanks; single reagent cartridge has all supplies for calibration and waste collection	accurately measures tHb and SO2 using optical technology in a single-use cartridge system; easy-to-use color touch screen guides user through testing; fast results and a new multilevel SRC that lets you run 3 levels of electronic QC at once

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 6 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**OPTI Medical Systems** **Sales Department** **235 Hembree Park Drive, Roswell, GA 30076** **800-490-6784** www.optimedical.com	**Radiometer America** **Telesales Department** info@radiometeramerica.com **810 Sharon Drive, Westlake, OH 44145** **800-736-0600** www.radiometeramerica.com	**Radiometer America** **Telesales Department** info@radiometeramerica.com **810 Sharon Drive, Westlake, OH 44145** **800-736-0600** www.radiometeramerica.com
Name of device/First year sold/Number of analyzers sold in 2013	OPTI CCA-TS Blood Gas Analyzer/2003/—	ABL90 FLEX/2010 in U.S./—	ABL 800 Series/2004/—
Number of devices sold in U.S./Outside U.S./List price	—	—/—/$40,000	—/—/depends on configuration
Dimensions (H x W x D)/Weight	4.7 × 14.2 × 9 inches/12 pounds (10 lbs without battery)	17.7 × 9.8 × 11.4 inches/24 pounds	22 × 28 × 21 inches/70 pounds
Analytes measured on device	pH, pCO2, pO2, Na, K, Cl, iCa, tHb, SO2, glucose, BUN, lactate	pH, pCo2, p02, Hb, Na, K,Cl, iCa, lactate, glucose, sO2, tHb, FO2Hb, FCOHb, FMetHb, FHHb, FHbF	pH, pCO2, p02, Hb, Na, K, Cl, iCa, lactate, glucose, bilirubin, fetal Hb, O2Hb, MetHb, RHb, COHb, O2SAT, creatinine
Parameters calculated on device	Hct, HCO3, BE, BEecf, BEact, BB, tCO2, HCO3, pH, O2ct, cH+, AaDO2, AG, p50, nCa++	Hct, BE, TCO2, HCO3, and 44 additional parameters	Hct, BE, TCO2, HCO3-, plus 40 additional parameters
Barometric pressure	measured	measured, recorded	measured
Analytical method(s) or technologies employed	optical fluorescence and reflectance	pH, iCa, pCO2, lactate, glucose, Na, Cl, K: thick film sensors, potentiometric analysis; pO2: optical phosphorescence; Hct: calculation; Hb: multiwavelength CO-ox spectrophotometric analysis	pH: pH-sensitive glass (ISE); pCO2, pO2, Na, Cl, iCa, K, ISE; Hct: calculated from measuring Hb, bilirubin; Hb: optical, multiwavelength analysis, intra-cuvette ultrasonic hemolysis, and more
Device is part of a series of related models	yes (Opti series)	no	yes (ABL 800 series)
Device warranty/Loaner devices provided	1 year (service contract available for subsequent years)/yes	1 year, parts, labor, and travel (service plans available after year 1)/yes	2 years, parts, labor, and travel/yes
Average life expectancy of device	>7 years	10+ years	20 years, with full support
Open or closed system/External gas tanks required	closed/no	closed/no	closed/yes (low-pressure, premixed)
Categorized for point-of-care testing or laboratory	point-of-care testing and laboratory	point-of-care testing, RT and laboratory	point-of-care testing and laboratory
Point of care:			
Disposable prepackaged system used for analysis	single-use cassettes	electrode sensors (multiuse cartridge)	—
No. of disposable reagent system units in standard package	25	1	—
No. of samples analyzed per one disposable reagent, electrode system	1	100, 300, 600, 900	—
Reagent unit storage requirements	room temperature	room temperature, small SC is refrigerated	—
Shelf life of disposable units	cassette: 6–12 months depending on type	reagent/electrode system: 4 months	—
Laboratory:			
No. of different disposable reagents required to maintain device	1	2	4
Max. No. of analyte reagents that can reside in device at once	8	2 (100, 300, 600, 900 tests)	4
Shelf life of components	cassette: 6–8 months, depends on type	reagent and sensor cartridge: 3–4 months	reagent, electrode, membrane kit, cartridge: 2+ years
Cost per test/Reagent cost per test	depends on volume/depends on volume	depends on configuration/depends on volume	depends on sample volume and any extra included items/same
Calibrations required	1 point (automatic)	1 and 2 point (automatic plus optional manual)	1 and 2 point (automatic)
Calibration frequency	with each cassette	1 point with each sample analysis; 2 point: 8 hours (user configurable)	1 point: 30 minutes BG/pH, 4 hours—manufacturer; 2 point: every 8 hours
Internal QC program recommended	minimum CLIA recommendations; electronic QC can be used for daily QC requirements	NIST-traceable QC automatic 8 hours according to CAP, CLIA, JCAHO guidelines; user configurable for increased QC frequency	depends on hospital management and inspection agency
QC features/Capabilities of QC features	—/electronic QC, statistics reports	L-J plots/auto QC (statistical calculations, monthly cumulative reports, on board and through DMS); QA management for auto troubleshooting and correction	L-J plots/comparable plot (via DMS), statistical calcs., automatic QC, monthly cumulative reports (onboard and available with external system)
Remote control of device from laboratory	no	yes	yes
System can use LOINC to transmit results to LIS	yes	yes	yes
Specimen types suitable for device	plasma, serum, whole blood	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous, expired air
Acceptable anticoagulants/Sampling technique	heparin/aspiration and capillary	heparin, electrolyte-balanced heparin/aspiration, auto aspiration, capillary, test tube, microsample	heparin, electrolyte-balanced heparin/autoaspiration, syringe, capillary tube, test tube
Sample size for complete panel of analyte results	125 µL	65 µL	95 µL for 17 measured parameters
Sample size differs with number of analytes selected	—	no	yes, with fewer measured parameters, smaller micro-modes available from 35 µL
Time from sample introduction to result availability	~1 minute from sample aspiration	35 seconds	~1 minute (depends on tests ordered)
Maximum No. of patient samples per hour/Maximum No. measured results per hour	24/192	50/800	25/425
Optimal throughput when analyzer calibrated, awaiting specimens	24 tests per hour	800 tests (equals 50 patient samples)	25 tests per hour
Calibration can be interrupted to perform stat sample	no	yes	yes
Known interferences	—	—	halothane, thiocyanic, and glycolic acids
Sampler has self-wiping probe	no, single use	yes	yes
Time required for maintenance by lab personnel	weekly: 1 minute; quarterly: 5 minutes	monthly: 1 minute as needed	monthly: as needed; annually: dependent on version
Service center performs diagnostics through modem	no	option	yes
Method of analyst ID in system	bar code or secure PIN for 300 operators	customizable user log-ons, bar code, onboard keyboard; built-in bar-code scanner for 1,000 operators	customizable onboard keyboard, bar code
Instrument response for:			
• hardware failure/software failure	error message/error message	HW/SW: system message; traffic light; audible, visual signals, parameter bar traffic light; self-correcting QA system	HW/SW: system message with customized (traffic light) visual and audible signals, parameter status bar
• QC failure	QC lockout	QC lockout and hardware-software codes	—
• calibration failure	error message	same as hardware-software failure codes	—
For what bar-code scanning is provided	operator and patient IDs, reagent, QC	operator and patient IDs; uses smart-chips for reagents, no scanning needed	operator and patient IDs, reagent and QC lot numbers, expiration, software keys
Built-in printer/Data port	yes/RS-232, Ethernet	yes/RS-232, parallel, Ethernet, USB	yes/RS-232, Ethernet, USB
Information listed on hard copy report	patient ID, results, patient demographics (customized), critical ranges	patient information and demographics, patient therapy settings, measured and calculated results, system messages, reference and critical values, analyzer setup and configuration, and more	patient information and demographics, patient therapy settings, measures and calculates results, system messages, reference and critical ranges
Analyzer connections	directly to LIS/HIS, DMS that connects to LIS/HIS, Prism POC data manager	directly to LIS/HIS/CIS via data-management system	Radiance stat information management system that connects to LIS/HIS or directly to LIS/HIS
Interface standards supported	ASTM, ASCII	ASTM 1394, HL7, serial, POCT1-A, network, TCP/IP	ASTM, HL7, serial, POCT1A, network TCP/IP
How analyzer connects to external system to upload patient and QC results	direct serial, Ethernet hospital network	direct serial, hospital network, wireless	direct serial: thousands of hospitals installed; modem dial-in: hundreds; hospital network: hundreds; real-time
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier, all information pertinent to patient and QC data	device-unique identifier, operator and patient IDs, results, QC identifier, calibration and analyzer status	device-unique identifier, operator and patient IDs, results, QC identifier, per ASTM/HL7 standards plus calibration and analyzer status information
Hardware and software for data-management system	Prism POC data manager	internal system and external: Radiance and all other DMS systems	internal system plus optional external system, Radiance
No. of different management reports system produces	40	standard and user-definable reports	user-definable searches and reports
Contents downloaded from data-management system to analyzer	—	valid operator IDs	—
System connected (live installations) to which LISs, HISs	Meditech, McKesson, Cerner, Siemens, others	Cerner, McKesson, Meditech, Sunquest, many others	Cerner, McKesson, Meditech, Sunquest, many others
Use a third-party interfacing tool, engine for LIS, HIS interfaces	—	an interfacing tool or engine could be used, if customer requires it	an interfacing tool or engine could be used if customers requires it
Distinguishing features (supplied by company)	stable optical fluorescence technology, easy-to-use touchscreen, measured tHb and SO2, no standby costs (single-use system), low maintenance	fast results (35 seconds on 65-µL sample with 44–55 per hour throughput); easy to use: walk-up ready; one-handed operation with integrated user guides and no user maintenance; automatic quality management supports regulatory compliance requirements, performs continuous checks and corrective actions are performed automatically	IDMS-traceable creatinine; FLEXQ automated inlet part of automatic system; bilirubin and fetal Hb measured on whole blood with no extra sample volume, low maintenance and cost of operation; FDA approved for the measurement of Pleural Fluid pH

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 7 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Radiometer America** **Telesales Department** info@radiometeramerica.com **810 Sharon Drive, Westlake, OH 44145** **800-736-0600** www.radiometeramerica.com	**Roche Diagnostics** **Lynda Denney** lynda.denney@roche.com **9115 Hague Rd., Indianapolis, IN 46256** **317-521-4335** www.mylabonline.com	**Roche Diagnostics** **Lynda Denney** lynda.denney@roche.com **9115 Hague Rd., Indianapolis, IN 46256** **317-521-4335** www.mylabonline.com
Name of device/First year sold/Number of analyzers sold in 2013	ABL80 FLEX Series/2006/—	cobas b 123 POC system/—	cobas b 221 system/2004/—
Number of devices sold in U.S./Outside U.S./List price	—/—/depends on configuration	—	—
Dimensions (H x W x D)/Weight	16 × 9 × 11 inches/19 pounds	18.5 × 12.6 × 13 inches/54 pounds	23 × 20 × 23.6 inches/99 pounds (without solutions and AutoQC)
Analytes measured on device	pH, pCO2, pO2, Hct, Na, K, iCa, Cl, glu, Hb, SO2, O2Hb, COHb, MetHb, HHb	pH, pCO2, pO2, Na, K, iCa, Hct, glucose, lactate; co-oximetry: tHb, O2Hb, Hhb, COHb, MetHb, SO2	pH, pCO2, pO2, Hct, Hb, Na, K, Cl, iCa, lactate, glucose, BUN, bilirubin, pH pleural fluid
Parameters calculated on device	Hb, O2SAT, TCO2, HCO3-, ctO2 (a-v), ctO2, anion gap (K+), cCa2+ (7.40), cBase (B), ABE, SBE, others measured, recorded	Hb, Hct, O2SAT, BE, TCO2, HCO3 recorded	Hb, Hct, O2SAT, BE, TCO2, HCO3- recorded, measured
Barometric pressure			
Analytical method(s) or technologies employed	pH, pCO2, pO2, Na, K, iCa, Cl, glucose: thick film; amperometric/potentiometric technology; HCT: conductivity, hemoglobins, CO-oximetry	pH, ICa, NA, K: potentiometric Nernst-equation; pCO2: potentiometric Severinghaus type; pO2: amperometric clark type, lactate; glucose: enzymatic, Hct conductivity; Hb: spectroscopy	pH: electrode ion-selective galvanometric; pCO2, pO2: electrode ion-selective membrane; Hct: conductivity; Hb: CO-ox spectrophotometry; Na, Cl, iCa, K: ion selective potentiometry; lactate, glucose, BUN: MSS sensor enzyme
Device is part of a series of related models	yes	—	yes (3 models in series)
Device warranty/Loaner devices provided	1 year, parts, labor, and travel (service plans available after year 1)/yes	1 year/yes	1 year, parts and services/no
Average life expectancy of device	analyzer: 10+ years	10 years	7 years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing, RT and laboratory	point-of-care testing and laboratory	point-of-care testing and laboratory
Point of care:			
Disposable prepackaged system used for analysis	electrode sensors (multiuse cartridge)	multiuse cartridge	reagent, electrode
No. of disposable reagent system units in standard package	1	1 sensor cartridge, 1 AQC pack, 1 fluid pack	—
No. of samples analyzed per one disposable reagent, electrode system	25, 50, 100, 200, 300	200, 400, 700	—
Reagent unit storage requirements	room temperature	sensor cartridge; AQC pack: refrigeration; fluid pack: RT	room temperature
Shelf life of disposable units	reagent and sensor cassette: 3–4 months	fluid pack: 9 months; sensor cartridge: 4 months	reagents: 12 months; electrodes: 18 months
Laboratory:			
No. of different disposable reagents required to maintain device	2	1 sensor cartridge, 1 AQC pack, 1 fluid pack	depends on model, contact Roche
Max. No. of analyte reagents that can reside in device at once	1 sensor cassette	1 sensor cartridge, 1 AQC pack, 1 fluid pack	3
Shelf life of components	3–6 months	fluid pack: 9 months; sensor cartridge: 4 months	reagent: 1 year; electrode: 18 months onboard
Cost per test/Reagent cost per test	depends on configuration/same	—	volume dependent/volume dependent
Calibrations required	1 and 2 point (automatic and optional manual)	1 and 2 point (manual and automatic)	1 and 2 point (automatic)
Calibration frequency	1 point: with each test; 2 point: 8 hours (user definable)	1 point: every 30 minutes; 2 point: every 8 hours	1 point: 30 minutes; 2 point: 8 hours
Internal QC program recommended	NIST-traceable QC material run automatically according to CLIA, CAP, JCAHO	standard QC according to CAP, CLIA, JCAHO guidelines; user configurable for increased QC frequency	CAP and JCAHO guidelines
QC features/Capabilities of QC features	L-J plots/statistical calculations, monthly cumulative (onboard–current mean, STD, CV%) reports (onboard and available with external system, PC download to Excel, QA system)	1 AQC pack, fully user programmable/L-J plots, acid base map, patient trending map, external cobas bge link software customized user reporting	L-J plots/comparable plot, lot-to-lot comparisons, statistical calculations, monthly cumulative reports, onboard, eQAP
Remote control of device from laboratory	yes	yes	yes
System can use LOINC to transmit results to LIS	yes	yes	yes
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous	plasma, serum, whole blood, capillary, arterial, venous
Acceptable anticoagulants/Sampling technique	heparinized, electrolyte balanced heparin/aspiration, capillary	heparin/aspiration, capillary transfer and fill	EDTA, heparin, citrate/aspiration, injection, capillary transfer and fill, microsamples
Sample size for complete panel of analyte results	70–105 µL	123 µL	200 µL for full panel
Sample size differs with number of analytes selected	no	yes, BG: 37 µL; BG-CO-ox: 55 µL; CO-ox: 25 µL; BG-ISE-Glu-LAC: 102 µl	yes, BG: 40 µL; ISE: 40 µL; CO-ox 44 µL, glucose, lactate, BUN: 75 µL
Time from sample introduction to result availability	70 seconds	120 seconds	~1 minute (test dependent)
Maximum No. of patient samples per hour/Maximum No. measured results per hour	30/270	30/—	30/360
Optimal throughput when analyzer calibrated, awaiting specimens	30 patient samples per hour	30 patient samples per hour	30 patient samples per hour (full panel)
Calibration can be interrupted to perform stat sample	yes	yes	yes
Known interferences	—	—	—
Sampler has self-wiping probe	yes	yes	yes
Time required for maintenance by lab personnel	monthly: as needed	maintenance complete with component changes	daily: 2 minutes; monthly: 5 minutes; quarterly: 5 minutes
Service center performs diagnostics through modem	option	yes	yes
Method of analyst ID in system	customizable, onboard keyboard, built-in bar-code reader	password (customizable)	32-level password system (customizable)
Instrument response for:			
• hardware failure/software failure	HW/SW: system message with customized (traffic light) visual and audible signals, parameter status bar	diagnostic codes with descriptions/diagnostic codes with descriptions	identified onscreen and with diagnostic routine/onscreen with messages
• QC failure	self-correcting QA system	diagnostic codes with descriptions	onscreen report with high-low flagging, lockout capabilities
• calibration failure	onscreen report: same as hardware-software failure	diagnostic codes with descriptions	onscreen reporting with lockout capabilities
For what bar-code scanning is provided	operator and patient IDs, reagent and QC lot numbers, expiration, software keys	operator and patient IDs, smart chips on all consumables captures all important data	operator and patient IDs, reagent lot number, RF with transponders, expiration
Built-in printer/Data port	yes/RS-232, Ethernet, USB	yes/RS-232, parallel, Ethernet, others	yes/RS-232, parallel, Ethernet
Information listed on hard copy report	patient information and demographics, patient therapy settings, measured and calculated results, system messages, reference and critical ranges	patient demographics, hospital information, measured and calculated results, system messages, normal and critical ranges, operator inputs, diagnostic reports, setup, more	options can be customized; direct and measured parameters
Analyzer connections	Radiance stat analyzer management system, which connects to LIS/HIS or directly to LIS/HIS/CIS	directly to LIS/HIS, data-management system, which connects to LIS/HIS, cobas bge link software	cobas bge link software, data-management systems, LIS or HIS
Interface standards supported	ASTM, HL7, POCT1-A, serial, network, TCP/IP	ASTM 1394, HL7	ASTM, HL7, USB port
How analyzer connects to external system to upload patient and QC results	direct to HIS/LIS or Radiance stat analyzer management system that connects to HIS/LIS	direct serial, modem dial-in, Ethernet	Ethernet
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier	device-unique identifier, operator and patient IDs, results, QC identifier	device-unique identifier, operator and patient IDs, results, QC identifier
Hardware and software for data-management system	Radiance or any other DMS	cobas bge link software	cobas bge link software
No. of different management reports system produces	user definable	19 standard reports, plus customized reports; QC and patients results based on user validation rules; related patient RT inputs may be included; lid operator	19 standard reports, plus customized reports; QC and patients results based on user validation rules; related patient RT inputs may be included; lid operator
Contents downloaded from data-management system to analyzer	—	valid control values, valid operator IDs	valid operator IDs
System connected (live installations) to which LISs, HISs	Cerner, Meditech, Sunquest, others	compatible with all major LIS/HIS organizations	Cerner, Meditech, others
Use a third-party interfacing tool, engine for LIS, HIS interfaces	can use interface templates or interface engine	—	Data Innovations
Distinguishing features (supplied by company)	portable, true battery operation; fast startup, warmup, and analysis time; simple and easy-to-use system with automated quality management system	one and done maintenance; virtually hands-free linearity testing; multiuse fluid pack; 4 levels of clot protection and management; micro-mode capability; fast time to patient results; strong sample throughput; automatic quality control pack	FDA 510(k)–cleared pH pleural fluid results; 42-day onboard reagent packs; Roche AutoQC with up to 40 days of QC covered; screen sharing and remote protected access with cobas bge link software and Axeda software

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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In vitro blood gas analyzers

Part 8 of 8 *See* captodayonline.com/productguides *for an interactive version of guide*	**Siemens Healthcare Diagnostics** **1717 Deerfield Rd.** **Deerfield, IL 60015-0778** **800-255-3232** www.siemens.com/diagnostics	**Siemens Healthcare Diagnostics** **1717 Deerfield Rd.** **Deerfield, IL 60015-0778** **800-255-3232** www.siemens.com/diagnostics	**Siemens Healthcare Diagnostics** **1717 Deerfield Rd.** **Deerfield, IL 60015-0778** **800-255-3232** www.siemens.com/diagnostics
Name of device/First year sold/Number of analyzers sold in 2013	RAPIDPoint 500 system/2011/—	RAPIDPoint 300 Series/2009/—	RAPIDLab 1200 Series/2005/—
Number of devices sold in U.S./Outside U.S./List price	—	—	—
Dimensions (H x W x D)/Weight	21.5 × 11.5 × 16 inches/36.5 pounds	12.5 × 14.5 × 7 inches/16–17 pounds	22.75 × 20.5 × 21 inches/65–68 pounds
Analytes measured on device	pH, pCO2, pO2, Hb, Na, K, Cl, iCa, glucose, lactate, neonatal total bilirubin, CO-oximeter fractions (fO2Hb, fCOHb, fMetHb, fHHb), pleural fluid pH	pH, pCO2, pO2, Hct, Na+, K+, Cl-, iCa++	pH, pCO2, pO2, tHb, Na+, K+, Cl-, iCa++, lactate, glucose, FO2Hb, FCOHb, FMetHb, FHHb, total neonatal bilirubin
Parameters calculated on device	O2SAT, BE, TCO2, HCO3	Hb, O2SAT, BE, TCO2, HCO3	HCO3-act, HCO3-std, BE(B), BE(ecf), ctCO2, Ca++(7.4), RI(T), O2SAT, PO2/FIO2, AnGAP, sO2, BO2, pO2(A-a)(T), pO2(a/A)(T), p50, Qsp/Qt(T), ctO2(Hb), ctO2(a), ctO2(v), ctO2(V), ctO2(a-v), DO2, VO2, others measured, tracked
Barometric pressure	recorded	recorded, measured	
Analytical method(s) or technologies employed	pH, iCa, Na, Cl, K: potentiometry using ISE; pCO2: potentiometry based on Severinghaus; pO2: amperometric; glucose: amperometric, glucose oxidase; tHb, CO-ox, nBili: spectrophotometric; lactate: amperometric, lactate oxidase	pH: ISE-potentiometry; iCa: ISE; PCO2: ISE-potentiometry; p02: ISE-amperometry; Hct: conductivity; Hb: calculated from hematocrit; Na: ISE; Cl: ISE; K: ISE	pH: potentiometry; pCO2: Severinghaus electrochemical; p02: amperometric; Hct: calculated; tHb, CO-ox: spectrophotometric; Na, Cl, iCa, K: ISE; lactate: amperometric, lactate oxidase; glucose: amperometric, glucose oxidase; total neonatal bilirubin: spectrophotometric
Device is part of a series of related models	no	yes (two models: RapidPoint 340 offers blood gas; RapidPoint 350 offers blood gas, electrolytes, and hematocrit)	yes (series offers different analyte options)
Device warranty/Loaner devices provided	1 year/yes	1 year (country specific)/yes	1 year/no
Average life expectancy of device	7–10 years	7–10 years	7–10 years
Open or closed system/External gas tanks required	closed/no	closed/no	closed/no
Categorized for point-of-care testing or laboratory	point-of-care testing and laboratory	laboratory	point-of-care testing and laboratory
Point of care:			
Disposable prepackaged system used for analysis	multiuse cartridge	multiuse cartridge	multiuse cartridges, electrode measurement chamber
No. of disposable reagent system units in standard package	1 measurement and 1 wash-waste cartridge, 1 AQC cartridge	1	1 reagent cartridge, 1 wash cartridge
No. of samples analyzed per one disposable reagent, electrode system	100 (coming soon), 250, 400, 750 samples	based on daily testing volumes	reagent cartridge is not sample dependent
Reagent unit storage requirements	measurement and AQC cartridge: refrigeration; wash-waste cartridge: room temperature	room temperature	reagent cartridge, AQC cartridge: refrigeration; wash cartridge: room temperature
Shelf life of disposable units	9 months	reagents: 7–9 months; electrodes: 12 months	reagent, wash cartridge: 8 months; AQC cartridge: 9 months; electrodes: varies based on type
Laboratory:			
No. of different disposable reagents required to maintain device	1 measurement and 1 wash-waste cartridge, 1 AQC cartridge	1	1 reagent cartridge, 1 wash cartridge
Max. No. of analyte reagents that can reside in device at once	1 measurement and 1 wash-waste cartridge, 1 AQC cartridge	1	1 reagent cartridge, 1 wash cartridge, all electrodes
Shelf life of components	cartridge: 9 months	reagents: 7–9 months; electrodes: 12 months	electrodes: based on type; reagent cartridge: 8 months; wash cartridge: 8 months; AQC cartridge: 9 months
Cost per test/Reagent cost per test	—	varies based on configuration and test volume/—	varies based on configuration/—
Calibrations required	1 and 2 point (manual and automatic)	1 and 2 point (manual and automatic)	1 and 2 point (manual and automatic)
Calibration frequency	1 point: 30 minutes; 2 point: 2 hours	1 point (with each sample); 2 point (can be set to 2-, 4-, or 8-hour increments)	1 point: every 30 minutes; 2 point: every 8 hours
Internal QC program recommended	1 AQC cartridge; fully user programmable	1-level QC every 8 hours of testing (CLIA recommendation): Siemens QC material recommended	AQC cartridge, fully user programmable
QC features/Capabilities of QC features	L-J plots/external RAPIDComm data management, statistical calculations, monthly cumulative reports	L-J plots/statistical calculations, monthly cumulative reports, onboard	L-J plots/comparable plots, statistical calculations, monthly cumulative reports (avail. with external system)
Remote control of device from laboratory	yes	no	yes
System can use LOINC to transmit results to LIS	yes	yes	yes
Specimen types suitable for device	whole blood, capillary, mixed venous, arterial, venous, pleural fluid	whole blood, capillary, mixed venous, arterial, venous	whole blood, capillary, mixed venous, arterial, venous
Acceptable anticoagulants/Sampling technique	heparin/aspiration, pleural fluid	heparin/aspiration	heparin/aspiration
Sample size for complete panel of analyte results	100 µL minimum	75 µL capillary (RP340), 95 µL capillary (RP350); 100 µL syringe (RP340), 120 µL syringe (RP350)	95–175 µL
Sample size differs with number of analytes selected	no	no	yes (microsample mode available)
Time from sample introduction to result availability	~60 seconds	125 seconds (RP340), <120 seconds (RP350)	60 seconds
Maximum No. of patient samples per hour/Maximum No. measured results per hour	25/up to 336	25 samples (RP340), 30 samples (RP350)/75 (RP340), 210 (RP350)	24/up to 336 tests
Optimal throughput when analyzer calibrated, awaiting specimens	25 samples per hour	25 samples per hour (RP340), 30 samples per hour (RP350)	24 samples per hour
Calibration can be interrupted to perform stat sample	yes	yes	yes
Known interferences	benzalkonium	certain anticoagulants	—
Sampler has self-wiping probe	yes	yes	yes
Time required for maintenance by lab personnel	monthly: 1-minute cartridge replacement	daily: <1 minute	weekly: 5 minutes; monthly: 5 minutes
Service center performs diagnostics through modem	yes, via Internet connection and Siemens Remote Service	no	yes, via Internet connection and Siemens Remote Service
Method of analyst ID in system	password (customizable)	manual or bar-code entry (optional)	password (customizable)
Instrument response for:			
• hardware failure/software failure	diagnostic codes/diagnostic codes	operator warning, error messages/operator warning, error messages	diagnostic codes prompt operator/diagnostic codes prompt operator
• QC failure	fully customizable flags	sampling lock-out, flagged high or low QC results	diagnostic codes
• calibration failure	diagnostic codes	automatic calibration repeat, error messages, blank screen display	recalibrates, generates diagnostic code if unsuccessful
For what bar-code scanning is provided	operator and patient IDs	operator identifier, patient identifier, and reagent lot number	patient ID, accession number, operator password
Built-in printer/Data port	yes/RS-232, Ethernet, USB	yes/RS-232	yes/RS-232, Ethernet, USB
Information listed on hard copy report	operator and patient IDs, accession number, patient measured and calculated results, temperature, more	patient information, operator ID, measured and calculated results, date	operator and patient IDs, accession number, results, temperature, patient demographics, others
Analyzer connections	directly to LIS/HIS, data-management system, which connects to LIS/HIS	directly to LIS/HIS	data-management system, which connects to LIS/HIS; directly to LIS/HIS (both options)
Interface standards supported	LIS3	ASTM 1394 and E1381	LIS 4
How analyzer connects to external system to upload patient and QC results	direct serial, Ethernet	direct serial	direct serial, hospital network
Information included in transmission from analyzer to external system	device-unique identifier, operator and patient IDs, results, QC identifier	operator ID, patient ID, results	device-unique identifier, operator and patient IDs, results, QC identifier
Hardware and software for data-management system	RAPIDComm data-management system	internal data management	RAPIDComm data-management system
No. of different management reports system produces	unlimited and fully customizable	patient reports, QC statistics, L-J charts	customizable
Contents downloaded from data-management system to analyzer	valid control values, operator IDs, patient demographics downloaded for positive patient identification	—	valid control values, valid operator IDs
System connected (live installations) to which LISs, HISs	yes, with multiple LISs, HISs	—	yes, with multiple LISs, HISs
Use a third-party interfacing tool, engine for LIS, HIS interfaces	yes	no	yes
Distinguishing features (supplied by company)	no maintenance, multiuse cartridge; fast time to patient results and sample-to-sample throughput; 28-day onboard, automatic quality control cartridge	multiuse cartridge-based system eliminates gas tanks; no maintenance, easy-to-replace electrodes; small, portable, and economical; dialysate fluid testing application in select countries	cartridge-based high-throughput analyzer with minimal maintenance; fast time to patient results; onboard troubleshooting tutorials

Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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