

# ABL90 FLEX PLUS analyzer

Time on your side

17 critical parameters from a blood sample as small as 65 µL

## Test menu

pH, pCO<sub>2</sub>, pO<sub>2</sub>, sO<sub>2</sub>, ctHb, FO<sub>2</sub>Hb, FCOHb, FMetHb, FHHb, FHbF, cK<sup>+</sup>, cNa<sup>+</sup>, cCa<sup>2+</sup>, cCl<sup>-</sup>, cGlu, cLac, ctBil

### 35 seconds!

**That's how fast you get blood gas results on the new ABL90 FLEX analyzer.**

**Measure up to 17 parameters with full lab quality from 65 µL samples.**

Radiometer's next generation, cassette-based analyzer offers benchtop features in a compact design.

Plus get full IT connectivity, automatic quality management and minimum maintenance where you need it the most: at the point of care.

### Fast results and always ready

- 35 seconds to results for 17 acute care parameters
- High uptime of more than 22 hours per day
- Cycle time 60 sec

### Complete flexibility

- 100, 300, 600, 900 and 1200 test cassettes
- Portable or with rolling stand
- Fully operational on battery
- Sample volume of just 65 µL for all parameters
- Syringe, capillary and test tube without adapter

### Easy to use

- Instructional videos for easy on-screen user guidance
- Automatic opening and closing of inlet
- Selection of sample type on large touch screen
- Automatic mixing for safePICO syringes in just 7 seconds

### Easy to maintain

- Up to 30-days in-use lifetime of consumables
- Smart chips simplify installation and QC's are done automatically
- Remaining tests from a consumable can be used on another ABL90 FLEX analyzer
- Customizable pre-warnings
- Automatically detects and removes obstacles such as clots

### Regulatory compliance

- IQCP not required
- External QC not required by CAP or TJC
- Automatic quality control
- Dedicated QC solutions for correct quality control
- Continuous system and analysis checks
- Automated corrective actions

### Data integrity

- Standard protocols
- Full IT connectivity to AQUIRE point of care data management system

### Data integrity

- Communication protocols
- Full IT connectivity to the AQUIRE point-of-care management system

### 1st Automatic ready

- Radiometer's 1st Automatic scans and links together sampler and patient ID at the bedside
- Correct patient information is automatically sent to the analyzer and linked to the correct result
- Increased patient safety and reduced risk of preanalytical errors



# ABL90 FLEX PLUS analyzer

## Specifications

### Measured parameters

Type	Parameter	Units	Range of indication	Reportable range (default)
pH	pH	pH scale	6.3–8.0	6.818–7.797
Blood gas	$p\text{CO}_2$	mmHg; Torr	5–250	15.4–98.3
		kPa	0.67–33.3	2.05–13.1
	$p\text{O}_2$	mmHg; Torr	0–800	30.1–488
		kPa	0–107	4.0–65.0
Electrolyte	$\text{cK}^+$	mmol/L	0.5–25	2.1–10.5
		meq/L	0.5–25	2.1–10.5
	$\text{cNa}^+$	mmol/L	7–350	116–180
		meq/L	7–350	116–180
	$\text{cCa}^{2+}$	mmol/L	0.2–9.99	0.50–2.48
		meq/L	0.4–19.98	1.00–4.96
		mg/dL	0.8–40.04	2.00–9.92
	$\text{cCl}^-$	mmol/L	7–350	86–151
		meq/L	7–350	86–151
Metabolite	$\text{cGlu}$	mmol/L	0–60	0.5–41
		mg/dL	0–1081	9–738
	$\text{cLac}$	mmol/L	–0.1–31	0.4–24
		meq/L	–0.1–31	0.4–24
		mg/dL	–1–279	4–216
Oximetry	$\text{sO}_2$	%	–2–102	3.3–100.0
		fraction	–0.02–1.02	0.033–1.000
	$\text{ctHb}$	g/dL	–0.48–27.7	0.1–24.0
		g/L	–4.8–277	0.8–240
		mmol/L	–0.30–17.2	0.05–14.9
	$\text{FO}_2\text{Hb}$	%	–2–103	3.3–98.5
		fraction	–0.02–1.03	0.033–0.985
	$\text{FCOHb}$	%	–2–103	1.00–92.2
		fraction	–0.02–1.03	0.010–0.910
	$\text{fMetHb}$	%	–2–103	1.00–91.0
		fraction	–0.02–1.03	0.010–0.910
	$\text{fHHb}$	%	–2–102	2.4–98.5
		fraction	–0.02–1.02	0.024–0.985
	$\text{fHbF}$	%	–25–121	21–83
		fraction	–0.25–1.21	0.21 c
	$\text{cBil}$	$\mu\text{mol/L}$	–20–1000	27–648
		mg/dL	–1.2–58.5	1.6–37.9
		mg/L	–12–585	16–379

The *Range of indication* for a parameter is the range within which the analyzer is physically capable of measuring as defined in the "International vocabulary of basic and general terms in the metrology" (VIM).

The *Reportable range* is the range of results from a testing system or method over which a specified analytical performance is claimed.

### Measuring system

Sample volume (all parameters)	~ 65 $\mu\text{L}$
Measuring time (all parameters)	35 sec
Cycle time	60 sec
Throughput	44 samples/hour
Average uptime	more than 23.5 hours/day

### Derived parameters

$\text{pH}(T)$   
 $\text{pCO}_2(T)$   
 $\text{cHCO}_3(\text{P})$   
 $\text{cBase}(\text{B})$   
 $\text{cBase}(\text{B,ox})$   
 $\text{cBase}(\text{Ecf})$   
 $\text{cBase}(\text{Ecf,ox})$   
 $\text{cHCO}_3(\text{P,st})$   
 $\text{cH}^+$   
 $\text{cH}^+(T)$   
 $\text{ctCO}_2(\text{P})$   
 $\text{ctCO}_2(\text{B})$   
 $\text{pH}(\text{st})$   
 $\text{pO}_2(T)$   
 $\text{pO}_2(\text{A})$   
 $\text{pO}_2(\text{A},T)$   
 $\text{p50}$   
 $\text{p50}(T)$   
 $\text{p50}(\text{st})$   
 $\text{pO}_2(\text{A-a})$   
 $\text{pO}_2(\text{A-a},T)$   
 $\text{pO}_2(\text{a/A})$   
 $\text{pO}_2(\text{a/A},T)$   
 $\text{pO}_2(\text{a})/\text{FO}_2(\text{I})$   
 $\text{pO}_2(\text{a},T)/\text{FO}_2(\text{I})$   
 $\text{cCa}^{2+}(\text{pH}=7.40)$   
Anion Gap( $\text{K}^+$ )  
Anion Gap  
 $\text{DO}_2$   
Hct  
 $\text{pO}_2(\text{x})$   
 $\text{pO}_2(\text{x},T)$   
 $\text{ctO}_2(\text{B})$   
 $\text{ctO}_2(\text{a-v})$   
 $\text{BO}_2$   
 $\text{ctO}_2(\text{x})$   
 $\text{fShunt}$   
 $\text{fShunt}(T)$   
RI  
 $\text{RI}(T)$   
 $\text{VO}_2$   
 $\text{mOsm}$   
 $\text{Qx}$   
 $\text{Q}_t$   
 $\text{V}(\text{B})$   
 $\text{sO}_2$   
 $\text{FO}_2\text{Hb}$

### Security and QA features

Advanced planning of replacement and QC schedules  
Optional automatic QC at startup and after replacements  
Customizable QC and calibration schedule.  
Continuous sensor status monitoring with corrective actions to get more precise results.

## Sensor cassette

In-use lifetime	30 days
Shelf life	4 months
Storage temperature	2 – 8 °C
Automatic QC	Yes
Thermosat control	Sensor cassette: 37±0.15 °C Oximetry: 37±0.30 °C
BG / LYT / OXI with QC:	600 tests
BG / LYT / MET / OXI with QC:	100/300/600/900/1200 tests

## Hardware

### Computer specifications

8" color TFT-LCD, resolution 800 × 600 SVGA Touch screen  
Thermal-sensitive printer

## Software

### Software platform

Microsoft® embedded software  
SAP® SQL Anywhere

### Data capacity

Patient log: 2000  
Activity log: 5000  
Calibration adjustment log: 1000  
Data secured by password protection  
8 different user profiles

### Printer display options

Auto print (on/off)  
Select derived parameters  
Select input variables  
Reference ranges with results

## Sample handling

### Auto inlet

Automatic opening and closing of inlet  
Aspiration from syringe, test tubes and capillary tubes without adapter. Specific short probe position for low volume samples

## Additional information

### Dimensions

Width	9.8 in
Height	17.7 in
Depth	11.4 in
Weight	24.4 lbs

Data subject to change without notice.

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## Solution pack

In-use lifetime	30 days
Shelf life	6 months
Storage temperature	2 – 25 °C
Startup time	10 minutes

### Estimated lifetime of solution packs (days)

No of tests per day	5	10	15	20	30	50
SP90 (680 activities)	30	30	24	20	15	10
SP90 XL (980 Activities)	30	30	30	30	23	15

### Interface

Built-in barcode reader for operator & sampler ID  
Accepted codes: UPC/EAN, Code 128, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar and more  
Serial interface RS232 with power for external barcode reader  
3 USB connections  
Optional external keyboard  
Optional external mouse  
Optional external barcode reader

### Communication

HIS/LIS communication  
High-level protocols:  
ASTM  
HL7  
POCT1-A  
Low-level serial protocols:  
ASTM 1381-91, E1394-91  
Serial RAW  
Low-level network protocols:  
TCP/IP

Radiometer IT solution  
Interface via Ethernet adapter

Wireless communication  
Frequency supported:  
2.4 GHz/5.0 GHz  
Communication standards supported:  
802.11 b/g/n/ac  
Encryption standards supported:  
Open/WEP/WPA/WPA2 TKIP/AES

### Sample mixer

Mixing time 7 seconds  
For *safePICO* samplers

### Other

Operating environment	15 – 32 °C
Altitude correction	13,124 ft
Power	100 – 240 VAC, 50/60 Hz, 90W