

ABL800 BASIC analyzer



Meeting your essential needs

The facts about the ABL800 BASIC

Color touch screen

- Intuitive user interface
- Stand-by option
- User-definable shortcuts
- Parameter bar provides analyzer status at a glance
- Onboard help system via multimedia tutorials

Connectivity

- Full LIS/HIS connectivity reduces transcription errors
- Data capture through continuous synchronization
- Remote control of decentral analyzers from central location

Inlet

- Inlet design reduces risk of air bubbles
- Automated sample aspiration
- Sample volume down to 35 μL
- High sample success rate of capillary samples

Analytical performance

- Automated micromode reduces risk of user-induced bias and ensure accuracy of samples as small as 35 μL
- Interference-protected glucose and lactate results

Automated quality control

- Prescheduled QC checks
- Automatic storage of patient, QC, calibration and system data
- QA Portal-compatible



Test menu

pH | $p\text{CO}_2$ | $p\text{O}_2$ | $s\text{O}_2$ | ctHb | cK^+ | cNa^+ | cCa^{2+} | cCl^-
cGlu | cLac

Meeting your essential needs



The ABL800 BASIC is the ideal choice for you who are looking for efficiency and value in your critical care testing.

The ABL800 BASIC offers determination of the most important critical care parameters, including optimal values for total hemoglobin and oxygen saturation – with maximum accuracy and minimum effort.

Easy to use, the ABL800 BASIC provides you with fast and reliable results for fast patient treatment.

In addition, automatic quality control, automated sample aspiration and IT connectivity help reduce your workload and minimize errors.

Specifications

Default parameters

| Type | Parameters | Units | Measuring ranges |
|-----------|------------------|----------|------------------|
| pH | pH | pH scale | 6.300–8.000 |
| | cH ⁺ | nmol/L | 10.0–501 |
| Blood gas | pCO ₂ | mmHg | 5.0–250 |
| | | kPa | 0.67–33.3 |
| | | Torr | 5.0–250 |
| | pO ₂ | mmHg | 0.0–800 |
| | | kPa | 0.00–107 |
| | | Torr | 0.0–800 |
| Oximetry | ctHb | g/dL | 0.00–27.7 |
| | | g/L | 0.0–277 |
| | | mmol/L | 0.00–17.2 |
| | sO ₂ | % | 0.0–100 |
| | | Fraction | 0.000–1.000 |

Additional parameters

| Type | Parameters | Units | Measuring ranges |
|------------------|-------------------|----------|------------------|
| Electrolyte* | cCl ⁻ | mmol/L | 7–350 |
| | | meq/L | 7–350 |
| | cCa ²⁺ | mmol/L | 0.20–9.99 |
| | | meq/L | 0.40–19.98 |
| | | mg/dL | 0.80–40.04 |
| | cK ⁺ | mmol/L | 0.5–25.0 |
| meq/L | | 0.5–25.0 | |
| cNa ⁺ | mmol/L | 7–350 | |
| | meq/L | 7–350 | |
| Metabolite* | cGlu | mmol/L | 0.0–60 |
| | | mg/dL | 0–1081 |
| | cLac | mmol/L | 0.0–30 |
| | | mg/dL | 0–270 |
| | | meq/L | 0.0–30 |

* The total number of electrolytes and metabolites is limited to five.

Measuring modes

| Mode | Sample volume (µL) | Measuring time (sec) | Cycle time (sec) |
|-----------------------|--------------------|----------------------|------------------|
| All parameters | 195 | 80 | 150 |
| All parameters, micro | 95 | 135 | 200 |
| pH + BG + Oxi, micro | 85 | 80 | 145 |
| pH + BG + Oxi, micro | 55 | 100 | 170 |
| Glu + Lac, micro | 35 | 80 | 145 |
| Oxi, micro | 35 | 80 | 145 |

| Mode | Sample volume (mL) | Measuring time (sec) | Cycle time (sec) |
|-------------|--------------------|----------------------|------------------|
| Expired air | 15 | 65 | 170 |

Small sample volumes.

AutoCheck automatic quality control

| | |
|--|---|
| Number of ampoules in carousel: | 0–20 |
| Positioning of ampoules in carousel: | Random |
| Lot change: | 2 lots of same level possible at the same time |
| Liquid volume in ampoule: | 700 µL |
| Expiration of ampoules: | 24 months at 25°C / 77°F (including 15 days at up to 32°C / 90°F) |
| Conditioning time (from room temperature): | 15 min with filled carousel |
| Scanning time: | < 30 sec with filled carousel |
| Cycle time: | < 2 min 40 sec |
| Manual QC measurement possible: | Yes |
| Remote control: | Remote monitoring and start of measurement, e.g. via RADIANCE |

Input parameters

| Type | Definition |
|-------------------------|---|
| Patient ID | Patient identification number |
| Patient height | The height of the patient |
| Patient department | Which department the patient is from |
| T | Patient temperature |
| Sample type | Arterial, venous, mixed venous, capillary, prof. test, cal. verification |
| Patient note | Notes about the patient or sample |
| Patient weight | The weight of the patient |
| Patient Accession No. | Specific sample number |
| Patient age | Date of birth |
| Patient sex | Male or female |
| Draw time | When the sample was taken |
| Date of birth | Patient date of birth |
| Sample site | Not specified, brachial left/right, femoral left/right, radial left/right, finger left/right, heel left/right, umbilical cord |
| Patient birth weight | The weight of the newborn |
| Patient gestational age | Period of intrauterine fetal development from conception to birth |

| Type | Definition |
|---------------------|---|
| Patient name | Name of the patient |
| Physician | Name of the physician |
| Operator | Name of the operator |
| Operator department | Which department the operator is from |
| $p50(st)$ | Oxygen tension at 50% saturation of blood at standard conditions for pH, pCO_2 , FCO_{Hb} , $FMetHb$, $FHbF$ at 37°C |
| RQ | Respiratory quotient |
| $FO_2(I)$ | Fraction of oxygen in dry inspired air |
| \dot{Q}_t | Cardiac output |
| $\dot{V}O_2$ | Oxygen consumption |
| VCO | Volume of carbon monoxide, input value for measurement of V(B) |
| $sO_2(\bar{v})$ | Oxygen saturation of hemoglobin in mixed venous blood |
| $pO_2(\bar{v})$ | Oxygen tension of mixed venous blood |
| ctHb | Total hemoglobin concentration (if not measured) |
| $FCO_{Hb}(1)$ | Used for determining blood volume |
| $FCO_{Hb}(2)$ | Used for determining blood volume |

Parameters can be set for mandatory input and are user-definable.



Specifications

Derived parameters

| Type | Definition | Type | Definition |
|-------------------|--|----------------------|--|
| pH(T) | pH of blood at patient temperature | $pO_2(a)/FO_2(I)$ | Oxygen tension ratio of arterial blood to the fraction of oxygen in inspired air |
| $pCO_2(T)$ | Carbon dioxide tension of blood at patient temperature | $pO_2(a, T)/FO_2(I)$ | Oxygen tension ratio of arterial blood at patient temperature to the fraction of oxygen in inspired air |
| $cHCO_3^-(P)$ | Concentration of hydrogen carbonate in plasma | $cCa^{2+}(pH=7.40)$ | Concentration of ionized calcium in plasma at pH 7.40 |
| cBase(B) | Concentration of titrable base of blood (actual base excess) | Anion Gap(K^+) | Concentration difference of $K^+ + Na^+$ and $Cl^- + HCO_3^-$ |
| cBase(B,ox) | Actual base excess at 100 % oxygen saturation | Anion Gap | Concentration difference of Na^+ and $Cl^- + HCO_3^-$ |
| cBase(Ecf) | Concentration of titrable base of extracellular fluid (standard base excess) | $\dot{D}O_2$ | Oxygen delivery |
| cBase(Ecf,ox) | Standard base excess at 100 % oxygen saturation | Hct | Fraction of the volume of erythrocytes in the volume of whole blood |
| $cHCO_3^-(P, st)$ | Concentration of hydrogen carbonate in plasma of standardized blood (standard bicarbonate) | $pO_2(x)$ | Oxygen extraction tension of arterial blood |
| cH^+ | Concentration of hydrogen ions in blood | $pO_2(x, T)$ | Oxygen extraction tension of arterial blood at patient temperature |
| $cH^+(T)$ | Concentration of hydrogen ions in blood at patient temperature | $ctO_2(B)$ | Total oxygen concentration of blood (O_2 content) |
| $ctCO_2(P)$ | Concentration of total carbon dioxide in plasma | $ctO_2(a-\bar{v})$ | Total oxygen concentration difference between arterial and mixed venous blood |
| $ctCO_2(B)$ | Concentration of total carbon dioxide of whole blood (CO_2 content) | BO_2 | Oxygen capacity of hemoglobin. The maximum concentration of oxygen bound to hemoglobin in blood, saturated so that all deoxyhemoglobin is converted to oxyhemoglobin |
| pH(st) | pH of standardized blood ($pCO_2 = 40$ mmHg) | $ctO_2(x)$ | Extractable oxygen concentration of arterial blood |
| $pO_2(T)$ | Oxygen tension of blood at patient temperature | $fShunt$ | Volume fraction of shunted venous blood in arterial blood |
| $pO_2(A)$ | Oxygen tension of alveolar air | $fShunt(T)$ | $fShunt$ at patient temperature |
| $pO_2(A, T)$ | Oxygen tension of alveolar air at patient temperature | RI | Respiratory Index |
| p50 | Oxygen tension at 50 % saturation of blood | RI(T) | Respiratory Index at patient temperature |
| $p50(T)$ | Oxygen tension at 50 % saturation of blood at patient temperature | $\dot{V}O_2$ | Oxygen consumption |
| $p50(st)$ | Oxygen tension at 50 % saturation of blood at standard conditions for pH, pCO_2 , $fCOHb$, $fMetHb$, $fHbF$ at 37 °C | $mOsm$ | Plasma osmolarity |
| $pO_2(A-a)$ | Difference of oxygen tension of alveolar air and arterial blood | Qx | Oxygen compensation factor of arterial blood |
| $pO_2(A-a, T)$ | Difference of oxygen tension of alveolar air and arterial blood at patient temperature | \dot{Q}_t | Cardiac output |
| $pO_2(a/A)$ | Ratio of oxygen tension of arterial blood and alveolar air | V(B) | Volume of blood |
| $pO_2(a/A, T)$ | Ratio of oxygen tension of arterial blood and alveolar air at patient temperature | sO_2 | Saturation |
| | | FO_2Hb | Fraction of oxyhemoglobin in total hemoglobin in blood |

Calibration data

| Automatic: | Default interval: | Interval options: |
|------------------|-------------------|--|
| 1-point cal. | 4 hours | after measurement, 30 min, 1, 2, 4 hours |
| 2-point cal. | 4 hours | after measurement, 1, 2, 4 hours |
| System alignment | 24 hours | |
| Cleaning | 8 hours | 8, 24 hours |
| Manual: | | |
| tHb calibration | 3 months | never, 7 days, 1, 2, 3, 4, 6 months |

IT connectivity

Computer specifications

Intel Celeron Processor
3 USB ports
128 MB RAM
Hard disk 40 GB
TFT 10.4" VGA color touch screen
Dedicated 80386 CPU for wet-section operations

Data capacity

| | |
|--|------|
| Patient results: | 2000 |
| Calibration results: | 1000 |
| QC results: | 1500 |
| System messages and service registrations: | 5000 |

Communication

Access to Local Area Network for backup, etc.:
using PC network operating systems
supporting Windows®XP

Output protocols:

High-level protocols

ABL700-compatible ASTM (E1394-91)
ABL700-compatible HL7 (Version 2.2)
ABL5xx-compatible ASTM (E1394-91)

Low-level protocols

ASTM (E1381-95)
Radiometer network protocol (TCP/IP only)
Raw (serial only)

Transport layer

TCP/IP
RS232

RADIANCE

Communication via TCP/IP



ACUTE CARE TESTING