STAT PROFILE® Prime

Standardize Blood Gas and Critical Care Testing with Nova Prime Analyzers

Tests Available:

- pH
- PCO_2
- PO_2
- SO_2%
- Hct
- Hb
- MCHC
- Na
- K
- Cl
- TCO_2
- iCa
- iMg
- GLU
- Lac
- Urea
- Creat
- tBil
- CO-Ox
- HbF
- ePV

Estimated Plasma Volume

nova® biomedical

Largest Selection of Critical

Standardize on One Platform

The Nova Prime critical care platform offers 4 models with flexible test menus and as many as 24 critical care tests. This is by far the largest number of model and test menu choices offered by any blood gas company and they are all tied together by common reagents, operating procedures, user interfaces and the NovaNet™ connectivity platform.

Most sites are looking to standardize critical care testing but have a variety of departments with different test menu requirements and sample throughput needs. The Nova Prime analyzers allow each department to choose the Nova model that best matches their test menu, sample throughput, and budgetary needs without buying unneeded capabilities.

The benefits of this unmatched flexibility are reduced costs, standardized operating procedures and the largest overall menu of tests to satisfy each department.

Prime Plus
Comprehensive Model

The Largest Critical Care Test Menu

Stat Profile Prime Plus is a comprehensive, whole blood critical care analyzer that combines blood gases, electrolytes, metabolites, ePV (estimated plasma volume), hemoglobin, hematocrit, MCHC (mean corpuscular hemoglobin concentration), and CO-Oximetry in a simple compact device. Prime Plus combines maintenance-free, replaceable cartridge technology for its sensors and reagents with patented, new, maintenance-free, and non-lysing whole blood CO-Oximetry. Prime plus results are produced rapidly -in about one minute- and are combined with bidirectional connectivity and a powerful onboard data management system.

24-Test Prime Plus Menu

Blood Gases
pH, PCO_2, PO_2, SO_2%

Electrolytes
Na, K, iCa, iMg, Cl, TCO_2

Metabolites
Glucose, Lactate, BUN (Urea), Creatinine

Volume Status
Estimated plasma volume (ePV)

CO-Oximetry
O_2Hb, COHb, MetHb, HHb, HbF, Tbil

Hematology
Hct, Hb, MCHC

Compact Size
Height: 45.7 cm (18.20 in)
Width: 14.20 in (35.6 cm)
Depth: 15.50 in (39.1 cm)

Care Models, One Common Operating Platform

Prime Critical Care Model

Prime Blood Gas Model

Prime Electrolyte Model

The Basics

The Prime Critical Care and Prime Blood Gas Models provide a basic panel of tests on venous, arterial or capillary whole blood samples for ICU and ED patients. The Prime ABG model offers blood gases on a small 50 µL sample.

Prime Critical Care Model Test Menu

Blood Gases
pH, PCO_2, PO_2

Electrolytes
Na, K, iCa, Cl

Hematology
Hct

Metabolites
Glucose, Lactate

Compact Size
Height: 39.1 cm (15.38 in)
Width: 14.35 in (36.2 cm)
Depth: 30.1 cm (12.00 in)

Prime Blood Gas Model Test Menu

Blood Gases
pH, PCO_2, PO_2

Compact Size
Height: 39.1 cm (15.38 in)
Width: 36.2 cm (14.35 in)
Depth: 30.1 cm (12.00 in)

A New Generation Electrolyte Analyzer

The Prime ES Comp Plus model provides a low-cost option for running electrolytes including iMg and iCa. With its whole blood capability, Prime ES Comp Plus also serves as an excellent STAT electrolyte analyzer.

Prime Electrolyte Model Test Menu

Electrolytes
Na, K, Cl, iCa, iMg, pH*

Hematology
Hct*

Compact Size
Height: 39.1 cm (15.38 in)
Width: 36.2 cm (14.35 in)
Depth: 30.1 cm (12.00 in)

*Not available in all countries

Benefits of Standardizing with Nova Prime

Separate Sensor Cards and Calibrator Cartridges

Nova's individual sensor cards and calibrator cartridges are a lower-cost alternative to the inflexibility and waste of combined sensor/calibrator cartridge systems. By separating the sensor card from the reagent cartridge, reagents are not discarded when the sensor card life finishes first and sensor card life is not lost when reagents are finished first.

Clot Protection

Clot Block technology "blocks" or traps a clot in the sample probe where it can be easily flushed out. Clots are blocked from entering the MicroSensor Card preventing prolonged downtime or loss of Card life.

Automated Quality Control

Maintaining quality control is one of the most time consuming tasks in performing blood gas/critical care testing at multiple point-of-care sites. On-board automated quality control is a standard feature on all Prime platform blood gas/critical care analyzers. The Prime platform saves clinicians time by performing quality control for all analytes automatically at supervisor selectable intervals. Prime's fully automated, on-board liquid QC saves hours of time each week compared to individualized QC plans (IQCPs) and manually running controls.

NovaNet Connectivity

NovaNet is a single, economical solution for the bidirectional interface of all Nova point-of-care (POC) devices, including StatStrip glucose and all Stat Profile Prime analyzers, to the LIS/HIS/EMR.

- Over 70% of U.S. hospitals already use NovaNet for connectivity and management of Nova's StatStrip Glucose, Lactate, and Creatinine Meters.
- NovaNet is specifically designed to meet POC management and regulatory requirements by capturing patient test results, managing QC compliance, and recording operator activities.

Unique Tests for iMg, Urea, Creatinine, ePV and MCHC

Unique tests available on Prime platform eliminate the need for additional devices and workflow to monitor important critical care conditions such as kidney injury, plasma volume depletion or overload, arrhythmia and MCHC. The separate devices needed to provide these tests on a stat basis require additional sample draws, additional consumables, specimen labeling and transport to the lab. Prime Plus provides these tests as part of a 24 test critical care profile at dramatic cost savings with a single, small sample in about 1 minute.

Choice of Menus and Models

Individual departments can match their unique needs for test menu, sample workload, and budget to the appropriate Nova model. It is not necessary to purchase the most expensive analyzer for each department. Savings for training, consumables, and connectivity are realized by standardizing to one platform.

Models and Test Menus

	pH	pCO_2	pO_2	Na	K	Cl	iCa	iMg	Glu	Lac	Hct	Hb	SO_2%	CO-Ox	BUN (Urea)	Creat	ePV	MCHC
Prime Plus ABG/Lytes/ Metab/H+H/CO-Ox/BUN (Urea)/Creat	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Prime ABG/Lytes/Metab	●	●	●	●	●	●	●		●	●	●							
Prime Electrolyte	●			●	●	●	●	●			●							
Prime Blood Gas	●	●	●															

Clinical Value of Unique Prime Critical Care Tests

Prime Plus is the only blood gas/critical care analyzer to offer ionized magnesium, BUN (Urea), creatinine, estimated plasma volume and mean corpuscular hemoglobin concentration as part of its test menu. These tests offer important insights for cardiac, respiratory, renal, and volume status, enabling clinicians to better manage critically ill patients.

Ionized Magnesium

All Cause Mortality: Both hypomagnesemia and hypermagnesemia are associated with all-cause mortality.[1]

Respiratory Function: Hypomagnesemia is a highly prevalent, but under diagnosed, electrolyte abnormality in critically ill patients. It is associated with a 26-44% increase in risk for needing ventilatory support,[2,3,5] and a 53-96% increase in the duration of ventilatory support.[4,5] Mg replacement therapy guided by real-time, serial iMg measurement improves patient outcome in these patients:

- 21% reduction in the need for ventilatory support[4]
- Up to 2.5 fewer days on ventilator[3,5]

Hypermagnesemia, while less common than hypomagnesemia, can also lead to diaphragmatic weakness requiring ventilatory support.[6]

ICU: Approximately 30% of ICU patients do not have agreement between iMg and tMg. This can lead to unnecessary Mg replacement and testing, or under-replacement.[7]

Cardiac Surgery: 75% of patients undergoing cardiopulmonary bypass (CPB) have postoperative hypomagnesemia which can cause reduced cardiac contractility, cardiac arrhythmias, and cardiac arrest. Peri-operative correction of hypomagnesemia, titrated by real-time serial measurement of iMg, reduces risk of arrhythmia after CPB:[8]

- 77% reduction in ventricular tachycardia
- 35% reduction in atrial fibrillation
- 115% increase in maintaining continuous sinus rhythm after surgery.

Kidney Function: For patients undergoing continuous venovenous hemofiltration (CVVH) with citrate, ionized magnesium and not total magnesium (tMg), represents the physiologically active fraction of magnesium in serum. As many as 40% of CVVH patients have tMg results that do not correlate with iMg status.[9] This is thought to be because citrate is used in CVVH to bind Ca to anti-coagulate the blood. If citrate binds Ca, it binds Mg also, and the Mg/citrate complex would be measured in the tMg value. Thus, in this patient group, iMg is the only accurate way to assess a patient's effective Mg status.

BUN (Urea), Creatinine and eGFR

Kidney Function: Over 50% of intensive care unit (ICU) patients will develop acute kidney injury (AKI).[10] AKI portends increased ICU stay, increased cost, and compromised outcome. Prime Plus is the only blood gas analyzer to provide optional whole blood creatinine and BUN (Urea) tests plus eGFR for rapid assessment of kidney function. The BUN/Creatinine ratio also provides an assessment of illness severity, prolonged ICU stay, and prognosis.

Estimated Plasma Volume (ePV)

Respiratory Function: In patients requiring ventilatory support, measuring ePV and ΔePV may be useful additional data points to guide fluid management and guide extubation.

Heart Failure: ePV and ΔePV have been shown to have prognostic ability in patients with congestive heart failure (CHF).[11] Another area of interest is the use of ePV to guide diuresis in patients admitted for CHF. Often the endpoint for volume reduction in heart failure patients is not apparent, and over-diuresis is common. ePV therapy and ΔePV are useful parameters to help diurese in this challenging patient population.[12]

Kidney Function: Often patients on hemodialysis become hypotensive during treatment from having too much fluid removed, and this is associated with an increase in mortality.[13] ePV and ΔePV can help to guide fluid balance in these patients. In addition to hemodialysis, ePV may be beneficial in following patients with CKD, AKI, to help optimize their management. CKD and AKI patients are often congested and trending ePV allows better assessment and treatment.

Sepsis: Septic patients are often total-body fluid overloaded due to capillary leakage and movement of fluid from the intravascular space to the extravascular space. As a result, patients with sepsis require significant fluid resuscitation. Accurately assessing intravascular volume is notoriously difficult, and using ePV gives the clinician important data to help with that critical parameter.[11,12,14,15] ePV and ΔePV help to determine whether the patient is intra-vascularly depleted, or if they have been given enough fluid to restore intravascular volume. It is useful in deciding whether to give more fluid or to start pressers.

Mean Corpuscular Hemoglobin Concentration (MCHC)

Anemias: MCHC, along with measured hemoglobin and hematocrit, provides insight to identify and manage certain anemias and their etiologies. Low MCHC is found in microcytic hypochromic anemias due to internal bleeding, iron deficiency, chronic low grade blood loss, and thalassemia. High MCHC is associated with autoimmune hemolytic anemia, macrocytic anemia, severe burns, vitamin B12 deficiency, chemotherapies, and hereditary spherocytosis.

Comprehensive Model

Test Menu
pH, PCO_2, PO_2, SO_2%, Hct, tHb, Na, K, Cl, iCa, iMg, Glu, Lac, BUN (Urea), Creat, TCO_2, HHb, O_2Hb, MetHb, COHb, ePV, MCHC, HbF, Tbil

Acceptable Samples
Whole blood (heparinized), arterial, mixed venous

Sample Volume
135 µL

Calculated Parameters
Alveolar Oxygen (A), Anion Gap, A-aDO_2, a/A, Arterial Oxygen Content (CaO_2), Arterial-Venous Oxygen Content Difference C(a-v)O_2, BE-b, BE-ecf, HCO_3, Osmolality, BUN/Creat Ratio, Capillary Oxygen Content (CcO_2), eGFR, ePV, MCHC, Normalized Calcium (nCa), Normalized Magnesium (nMg), nCa/nMg Ratio, Oxygen Index (OI), O_2Cap, O_2Ct, P50, Temperature Corrected pH/PCO_2/PO_2, PO_2/FIO_2 Ratio, Qsp/Qt (Physiological Shunt), Respiratory Index (RI), SBC, TCO_2, CvO_2

The Basic Models

Critical Care Test Menu
pH, PCO_2, PO_2, Hct, Na, K, Cl, iCa, Glu, Lac

Blood Gas Test Menu
pH, PCO_2, PO_2

Acceptable Samples
Whole blood (heparinized), arterial, mixed venous, capillary

Sample Volumes
Critical Care Model 100 µL
Blood Gas Model 50 µL

Calculated Parameters
SO_2%, HCO_3-, TCO_2, BE-ecf, BE-b, SBC, O_2Ct, O_2Cap, A-aDO_2, a/A, RI, PO_2/FIO_2, Anion Gap**, P50**, Hb**

Temperature corrected pH, PCO_2, PO_2

Electrolyte Model

Test Menu
Na, K, Cl, iCa, iMg, pH,* Hct*

Acceptable Samples
Whole blood, (heparinized) serum, plasma

Sample Volume
100 µL

Calculated Parameters
niCa, niMg, niCa/niM

*Not available in all countries
**Not available in the Blood Gas Test Menu

Test Ranges:

pH	6.5 - 8 (H+: 316.2 - 10 nmol/L)	iCa	0.4 - 10.8 mg/dL (0.1 - 2.7 mmol/L)	MetHb	0 - 80% (0 - 0.8)
PCO_2	3 - 200 mmHg (0.4 - 26.7 kPa)	iMg	0.24 - 3.6 mg/dL (0.1 - 1.5 mmol/L)	COHb	0 - 60% (0 - 0.6)
TCO_2	90 - 1260 mg/dL (5 - 70 mmol/L)	Lactate	2.7 - 180.2 mg/dL (0.3 - 20 mmol/L)	SO_2%	30 - 100%
PO_2	5 - 765 mmHg (0.66 - 102 kPa)	Glucose	15 - 500 mg/dL (0.8 - 28 mmol/L)	O_2Ct	2 - 33.4 mL/dL (495.04 - 2952.56 µmol/L)
Hct	12 - 70%	BUN (Urea)	3 - 100 mg/dL (0.17 - 5.5 mmol/L)	O_2Cap	2 - 33.4 mL/dL (495.04 - 2952.56 µmol/L)
Na	80 - 200 mmol/L	Creatinine	0.2 - 12 mg/dL (10 - 660 µmol/L)	tHb	5 - 25 g/dL (50 - 250 g/L)
K	1 - 20 mmol/L	HHb	0 - 33% (0 - 0.33)	sHb	Alert > 1.5%
Cl	50 - 200 mmol/L	O_2Hb	0 - 100% (0 - 1)	BarP	400 - 800 mmHg (53.3 - 106.7 kPa)

Certifications: ISO 13485:2012 Quality System Registration, CSA, CE Self Declared Complies to EN 61010, EN 55011

Optional Accessories

Combined 1D/2D Barcode Scanner: An optional barcode scanner is available for all Stat Profile Prime models. The scanner reads both 1D and 2D barcodes for patient and operator IDs. QC package inserts can also be scanned for lot number and expiration date.

Auto-Sampler: An optional Auto-Sampler is available for Stat Profile Prime Electrolyte models. The 10-position tray accommodates serum, plasma, and urine samples in 0.5 mL sample cups. The Auto-Sampler is easy to load with prompting by the Stat Profile Prime user interface.

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